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No. 8

Bids on the New Battleships.

Washington, D. C., Sept. 1.—(Special Dispatch).—Bids opened today noon in the office of the secretary of the navy for the new battleships were as follows:

John H. Dialogue & Sons, Camden, N. J.—Class 1, one battleship, \$2,840,000; 16 knots speed; thirty-three months for completion.

Newport News Ship Building & Dry Dock Co., Newport News, Va.—One battleship, class 1, \$2,580,000, thirty-one months; separate bid on class 2 battleship, \$2,680,000, thirty-two months, 17 knots; also class 2, one battleship of about 12,500 tons, \$2,850,000, thirty-two months, 18 knots.

William Cramp & Sons, Philadelphia—Class 1, one battleship, \$2,650,000, twenty-nine months; class 1, two battleships, \$2,625,000 each, 16 knots; separate bid on class 2, battleship of about 11,500 tons, \$2,725,000, or two such for \$2,700,000 each, all based on thirty-two months time and 17 knots speed; separate bid, class 2 battleship, about 12,150 tons, \$2,885,000, thirty-two months, 18 knots, or two such for \$2,870,000 each.

Union Iron Works, San Francisco—Class 1, one battleship, \$2,674,000, thirty-one months; class 2, one battleship, \$2,725,000, thirty-three months, 17 knots; class 2, battleship of about 12,200 tons, \$2,899,000, thirty-three months, 18 knots.

Welland Canal Tolls.

The Lake Carriers' Association has decided to ask the Anglo-American conference, now considering subjects of commercial differences between the United States and Canada, to take up the question of abolishing Welland canal tolls. The association favors abolishment of the tolls, and a committee has been appointed to enter fully into the question with the international commission. This same committee will also take up with officials of the Canadian government, and possibly with the commission, the question of Canada bearing a further share of the expense of lighting lake channels, by providing aids to navigation at points on the Canadian side of the rivers, where private lights are in many cases now maintained by vessel owners of the United States. Members of the committee are J. C. Gilchrist of Cleveland, Alexander McDougall of Duluth, C. W. Elphicke of Chicago and H. D. Goulder, counsel of the association. For convenience in the transaction of its duties—looking after correspondence, etc.—the committee selected Mr. Goulder to act as chairman.

The meeting in Cleveland today (Thursday) to consider these subjects was attended by all of the executive officers of the association, including President J. S. Dunham of Chicago, Counsel Harvey D. Goulder of Cleveland, Secretary C. H. Keep of Buffalo and Treasurer George P. McKay of Cleveland, as well as a large number of Cleveland members. Ex-President J. J. H. Brown of Buffalo and Mr. J. H. Westbrook of the Ogdensburg Transit Co. were also in attendance.

It was evident from the discussion all through the meeting that, although the question of asking for a removal of the tolls should be approached on the broad principle that no tolls in the Welland meant more business for the lakes as a whole against southern routes, still there was a desire on the part of the members of the association to do something for Lake Ontario interests, and a desire also to help the smaller class of vessels that would be benefited by removal of the tolls but which have been placed at a great disadvantage in the upper lake trade by reason of deep channels and big steel carriers. The position of the association was well outlined in the remarks of Mr. B. L. Pennington of Cleveland. "The tolls at present represent about one-third of the freight," Mr. Pennington said. "Abolish these tolls and we reduce carrying charges. Reduce the rate and we are certain of an increase in the volume of business. It is another move in the direction of retaining business for the lakes as against southern routes. This is the broad principle upon which deep channels were made and upon which we must approach this question. Incidentally the removal of Welland canal tolls will work in favor of the small vessels, just as the 20-foot channel worked incidentally to the advantage of the large vessels. Tolls on the Welland or on any other canal of great commerce in Canada as well as the United States must be regarded as a relic of the past. Let us endeavor to assist in making the Welland an open door, alike to other canals of the lake region."

This was the tone of argument that caused the association to go on record as favoring removal of the tolls. There are many sides to the question, however, that will come out before the matter is disposed of by the international commission. It did not develop that there would be any special objection from Buffalo interests on account of the action of the association.

The September Supplement to the Inland Lloyds Register rates the new vessels as follows: Steamer Clinton, T. W. Newton & Co., Mt. Clemens, B1, \$6,000; steamer Hendrick S. Holden, John Mitchell and others, Cleveland, A1, \$210,000; steamer Huron, R. R. Rhodes, Cleveland, A1, \$125,000; steamer Samuel F. B. Morse, Bessemer Steamship Co., Cleveland, A1, \$250,000; steamer Troy, Western Transit Co., Buffalo, A1, \$200,000; schooner Maia, Minnesota Steamship Co., Cleveland, A1, \$135,000; schooner John A. Roebling, Bessemer Steamship Co., Cleveland, A1, \$150,000.

Not all of the vessel owners of the lakes manage to look upon the loss of old wooden ships in the philosophical manner shown by M. A. Bradley of Cleveland when any of the large fleet under his direction passes out of existence. When he was shown a dispatch, a few days ago, reporting the wreck of the steamer Superior on one of the islands of Lake Michigan, with the crew safe ashore, he remarked casually that he guessed she was not owing much in the world.

The West Bay City Ship Yard.

West Bay City, Mich., Aug. 31.—No definite action leading up to disposal of the plant of F. W. Wheeler & Co. has been taken as yet, but it is understood that the bondholders have been trying to arrange matters so as to attempt foreclosure under their first claim against the property. The creditors who hold bonds that were issued before the Bessemer ships were begun hold a first mortgage on the plant, of course, and it would be to their interest to foreclose and secure a settlement irrespective of other claims. But a proceeding of this kind, involving anything like a sacrifice of the plant if sold entire, will undoubtedly be fought very earnestly, especially by the Bessemer company, on the claim of \$75,000 to \$100,000 which they will present against Wheeler & Co. Then there are also some \$100,000 worth of claims for material and supplies furnished to the Bessemer ships in the name of F. W. Wheeler & Co., but which were taken up and held as the property of the Bessemer company under their contract immediately upon being delivered in the ship yard. Attachments made since the failure of Wheeler & Co. do not cover more than about 25 per cent. of the value of these supplies, so that this class of creditors also represent to a large extent an interest that will be in part opposed to the bond interest. A general meeting of all creditors to consider various phases of the ship yard difficulty is talked of and will probably be brought about shortly. It is quite probable that the final outcome will be a sale piecemeal of the various parts of the plant.

The letter from Capt. James Davidson to one of the Detroit papers denying that he had any thought of buying the steel yard was hardly necessary. It gave him an opportunity to again profess confidence in the lonely course he is following with wooden ships. Nobody believed the story that he had offered 60 per cent. for the bonds of Wheeler & Co. It had long been said that Capt. Davidson had a bank balance laid aside for the purchase of the steel plant, but such a fund, if it ever existed, was probably held at a time when the question of profit in operating a steel ship building works at West Bay City was different to what it is at present.

Business Outlook Steadily Improving.

At no time for several years have the prospects for a heavy fall trade been more encouraging than they are at present. With corn moving freely in advance of the new crop, and with a fair supply of wheat offering at Chicago, there has been a scarcity of vessels in the ore trade for more than two weeks past, and this in advance of the time having arrived for the shipment of northwestern wheat from the Duluth district. Although it is claimed that wheat is being held in the west, on account of the disappointment of farmers following the boom prices of a short time ago, Chicago shipments of all kinds of grain have more than equaled the movement of previous years thus early in the season, and this demand for vessels, coupled with a steady improvement in all branches of the iron trade, has had such a strengthening effect on lake freights that a moderate advance is now expected throughout the balance of the season. Higher rates on ore will certainly follow the opening of the Duluth grain season. There are not enough vessels offering now to meet the demands of ore shippers at the 50-cent rate from Lake Superior, and the Escanaba rate, which has been held at 40 cents on account of the influence of freight contracts, must advance within the next few days under present conditions. Some vessel owners, who are enthusiastic over the outlook in the iron trade, and the prospects of heavy grain shipments on account of the big crops, are predicting a dollar rate on ore before the season is at an end. This is, of course, only a guess, but the situation is so uncertain, and so much like seasons when a boom in the fall has attended big crops, that many of the ore shippers would feel more comfortable if the ore movement was farther advanced or their so-called wild ore more fully provided for.

Ore Cargo Record Broken.

All ore cargo records were again broken this week when the new steel schooner John A. Roebling of the Bessemer company's fleet brought from Duluth to Lake Erie, on a draught of 17 feet 6 inches fore and aft, a cargo amounting to 7,866 net tons. The best previous record was that of the schooner John Fritz, sister-ship of the Roebling, which on her initial trip brought down 7,794 tons of ore. Cargo records to date are as follows:

Iron ore—Schooner John A. Roebling, owned by the Bessemer Steamship Co. of Cleveland, 6,953 gross or 7,866 net tons, Duluth to Conneaut, draft of 17 feet 6 inches; schooner John Fritz, owned by Bessemer Steamship Co., Cleveland, 6,960 gross or 7,795 net tons, Duluth to Conneaut; steamer Superior City, owned by A. B. Wolvin of Duluth, 6,823 gross or 7,642 net tons, Escanaba to South Chicago.

Grain—Steamer Superior City, owned by A. B. Wolvin of Duluth, 266,550 bushels of corn, equal to 7,463 net tons, South Chicago to Owen Sound, draft of 18 feet 2 inches; steamer W. R. Linn, C. W. Elphicke and others, Chicago, 232,000 bushels of corn, equal to 6,496 net tons, South Chicago to Owen Sound; steel schooner Australia, James Corrigan of Cleveland, 210,539 bushels of wheat, equal to 6,316 net tons, Chicago to Buffalo; steamer Andrew Carnegie, Wilson Transit Co. of Cleveland, 332,100 bushels of oats, equal to 5,313 net tons, Manitowoc to Buffalo.

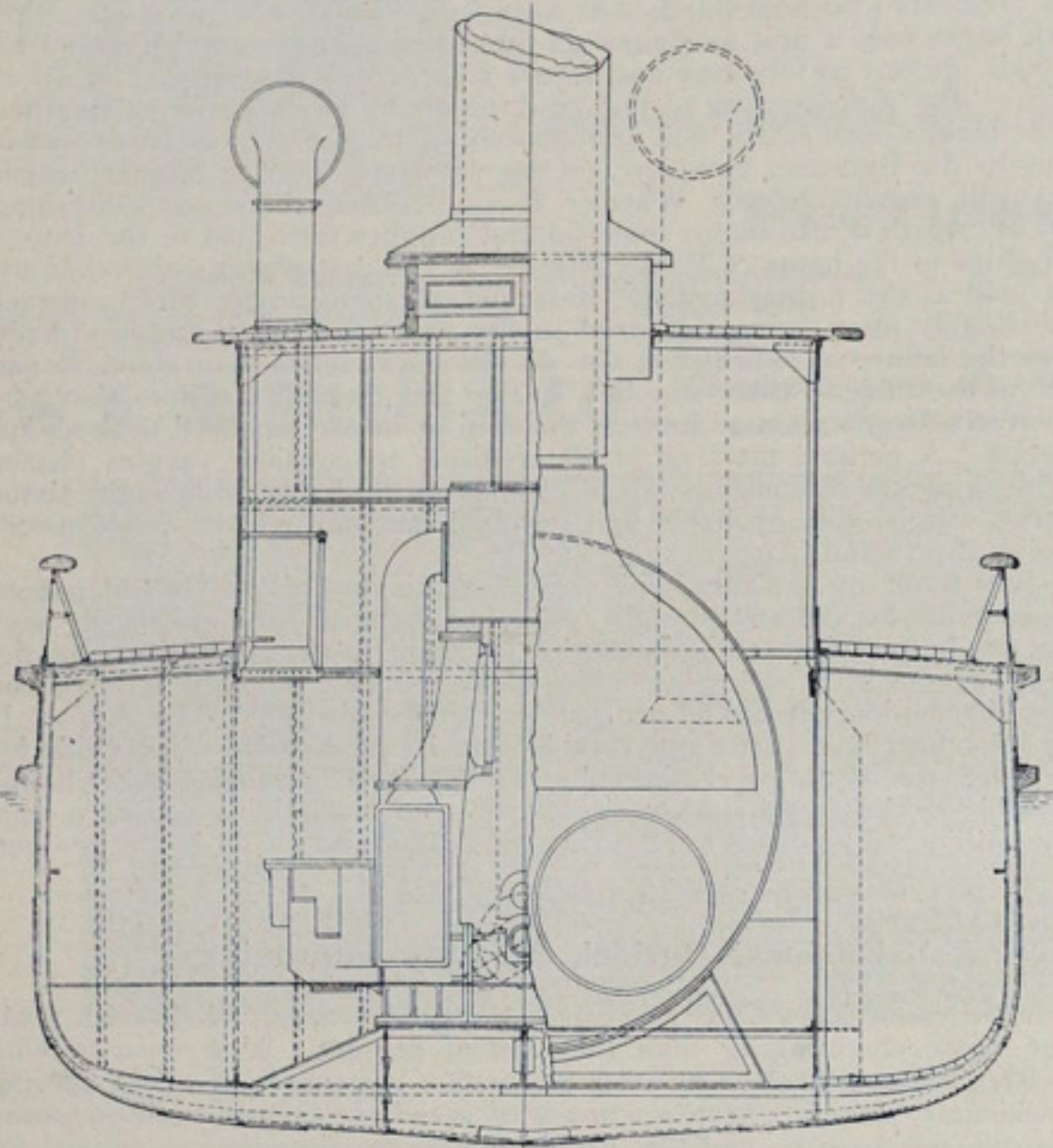
Coal—Schooner Polynesia, James Corrigan of Cleveland, 5,654 net tons of bituminous, Cleveland to Duluth, 16 feet draft; steamer Carnegie, Wilson Transit Co. of Cleveland, 5,369 net tons of bituminous, Cleveland to Duluth.

HARBOR TUG NATIONAL.

A STAUNCH CRAFT BUILDING FOR THE STANDARD OIL COMPANY BY THE HILLMAN SHIP AND ENGINE BUILDING CO. OF PHILADELPHIA.

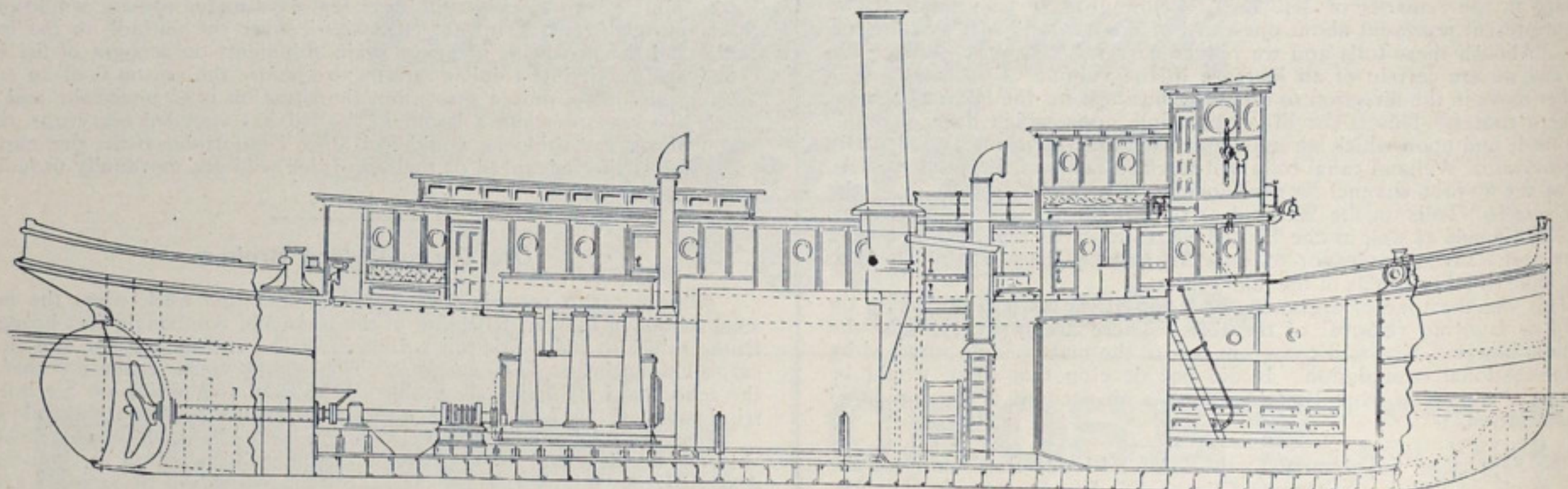
The Review is enabled to present this week the plans of the harbor tug National, now building for the shipping and lighterage department of the Standard Oil Co., at the Philadelphia yards of the Hillman Ship and Engine Building Co., and which is expected to prove one of the strongest vessels of her class in commission.

The tug, which is being constructed of mild steel of a tensile strength of 60,000 or 70,000 pounds, is of the following dimensions: Length over all, 102 feet; length between perpendiculars, 96 feet; breadth, molded, 22 feet;



SECTIONAL VIEW OF HARBOR TUG NATIONAL.

depth, molded, 10 feet 6 inches; spring of beam amidship, 5½ inches; draught with 100 tons of coal, 7 feet forward and 9 feet aft. The deckhouse will be entirely of steel. Forward will be the mess room ceiled with matched white pine. Aft of the mess room will be the galley, the floor of which is to be formed of pressed bricks laid in Portland cement. Lamp room and water closet will adjoin the galley in the rear. The engineer's room will be abaft the engine room and will be fitted with hard wood berths. The engine room itself will be finished in reeded sycamore and matched oak with a neat painted cornice. The captain's room, which will



HARBOR TUG NATIONAL, BUILDING FOR STANDARD OIL CO. BY THE HILLMAN SHIP AND ENGINE BUILDING CO.

have two berths will be finished for the main part in sycamore, but the floor of both the pilot house and captain's room will be finished in narrow strips of walnut and ash. The crew space will be forward below deck and eight berths will be provided. Radiators for steam heating will be placed in the captain's room, mess room, crew space and chief engineer's room, and the tug will also be fitted with a complete electric light plant.

The engines for purposes of propulsion will be triple expansion, of open front design with cylinders 14, 22 and 36 inches in diameter by 24 inch stroke. The ports and passages are to be proportioned for a speed of 150 revolutions and the machinery is to develop from 500 to 600 horse power in regular running with soft coal. The high pressure and intermediate cylinders will be fitted with piston valves and the low pressure cylinder

with a double-ported slide valve. The condenser will have about 800 square feet of cooling surface. There will, of course, be a complete equipment of air, feed, bilge and circulating pumps. The crank shaft will be of built-up steel, not less than 7* inches in diameter, and will be in three interchangeable sections. The propeller, which will be four-bladed, will be 7½ feet in diameter. Steam will be furnished from a Scotch boiler 11 feet 6 inches in diameter and of the same length, proportioned throughout to a working pressure of 170 pounds. There will be two corrugated furnaces of 44 inches inside diameter and of the interchangeable type.

The vessel will be equipped with a Williamson steam steerer, a full equipment of towing bits, steam capstan and windlass, and a Korting inspirator and Schutte bilge ejector will be utilized. The vessel will be delivered to her owners in New York after a trial trip of six hours steady steaming at full power. Mr. R. C. Veit, manager of the shipping and lighterage department of the Standard Oil Co., who personally superintended the preparation of the plans for this vessel is confident that the National will prove quite as satisfactory as any vessel in the Standard Oil company's fleet.

Active Operations in Coast Ship Yards.

Reports just received from eight leading ship builders of the Atlantic and Pacific coasts show that there are at present under construction in their yards thirty-six American steamships, six vessels for foreign account and twelve vessels for the United States government. The William Cramp & Sons' Ship & Engine Building Co. has building for American owners seven vessels of 30,168 tons displacement; the Crescent Ship Yard at Elizabeth, N. J., five steamships, aggregating 2,500 tons; Union Iron Works, San Francisco, 12,040 tons; Harlan & Hollingsworth Co., Wilmington, Del., 9,208 tons; Bath Iron Works, Bath, Me., 6,880 tons; Delaware Iron Ship Building & Engine Works, Chester, Pa.; six American steel vessels of 10,000 tons; Columbian Iron Works & Dry Dock Co., Baltimore, 11,000 tons; and Newport News Ship Building & Dry Dock Co., 40,500 tons. Of the latter, however, less than half is mercantile marine tonnage, the remainder being embraced in three United States warships now under construction by the Virginia concern. Eliminating the warships, it is found, that with the completion of vessels now under construction at these eight yards, fully 100,000 tons will be added to the credit of the American merchant marine, and there are, of course, numerous other yards from which figures have not been received. There are several of the smaller class of war vessels under construction at yards that are not included in this summary, and it may be well to note also that no account is taken of the large number of naval vessels of various types for which the government is about to let contracts.

Revenue Cutters of First Class not Suited to Cuban Service.

Capt. A. B. Davis of the revenue cutter Fessenden, during a call at the office of the Marine Review, a few days ago, expressed himself as rather skeptical regarding the report that the revenue cutters Gresham, Aigonquin and Onondaga would be assigned to service in Cuban and Porto Rican waters. "I am pretty familiar with navigation in that section of the world," Capt. Davis said, "and I am convinced that these revenue cutters, or for that matter any of the heavy ones in service on the Atlantic coast, will prove in no sense suitable. The smugglers there utilize the shallow bays and inlets almost exclusively, and these deep draught vessels would be practically powerless so far as efficient service is concerned!"

In this connection it is interesting to note the recommendation of Capt. Shoemaker, chief of the revenue cutter service, to the secretary of the treasury, that the first seven first-assistant engineers be promoted to the grade of chief engineer. The three highest officers have already passed the necessary examination, and advancement in their cases will take place at once, while the remainder will be advanced as soon as they shall have

appeared before the examining board. All promotions are to fill existing vacancies. All the revenue cutters transferred to the navy department for use during the war will be overhauled before being returned to the treasury department.

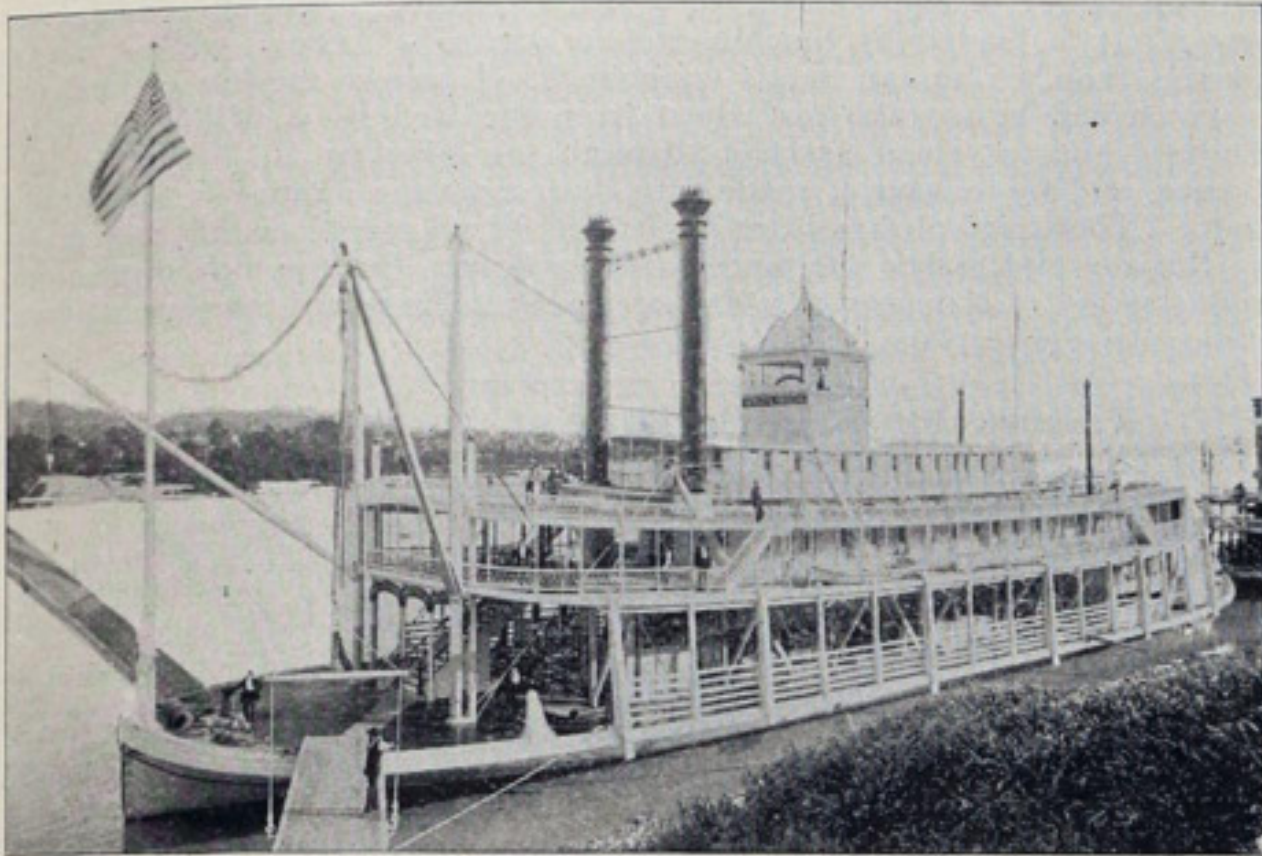
Richard B. Painton of Williamsport, Pa., who created considerable comment last week by his bids guaranteeing a speed of 40 knots for torpedo boat destroyers, is the inventor of the Painton propeller. The plan of his invention—a rather visionary affair—contemplates a series of propellers arranged along the sides of a vessel, to be driven at a high speed by electric motors.

RIVER STEAMER ST. JAMES.

ONE OF THE FINEST CRAFT ON THE MISSISSIPPI—COMPLETED RECENTLY BY THE CINCINNATI MARINE WAYS FOR THE MISSISSIPPI PACKET CO.

The steamer St. James, recently completed by the Cincinnati Marine Ways for the Mississippi Packet Co. of New Orleans, and a picture of which is herewith presented, is claimed to be one of the handsomest vessels ever constructed for river navigation in this country. The vessel is 186 feet in length, 36 feet beam, 6 feet depth of hold, and draws 3 feet of water. The timber entering into the vessel is fine oak and Washington fir, and the beams, knees and carlins are especially heavy, so as to insure strength and durability. The steamer is intended for the New Orleans and St. James parish trade—a run of about 165 miles along the coast—and was built with especial reference to the requirements of the route, where the principal freight is sugar. Her main deck has been so constructed that the boilers do not interfere with the easy carriage of cargo, which may aggregate 1,000 hogsheads of sugar or its equivalent.

Engines of this steamer have 17-inch cylinders with 7-foot stroke and are equipped with the California cut-off. She has three main boilers and one auxiliary boiler; two boiler feed pumps; a fire pump; freight hoisting engine, and an electric light plant supplying a 4,000-candle power search



STEAMER ST. JAMES, BUILT BY CINCINNATI MARINE WAYS.

light, three 2,000-candle power side lights and 125 incandescent lights. On the trial trip, on the Ohio river at Cincinnati, the engines, which are of the Charles Barnes type, attained 22 revolutions per minute with an initial pressure of 160 pounds of steam, cutting off at half stroke of piston, the steamer developing an average speed of 20 miles per hour. Automatic steering gear on this steamer is claimed to be superior to anything heretofore placed in a river-built craft, and there is provided one of Crawley & Johnston's pressure system marine waterworks. The interior finishing is elaborate, the cabin being in white and gold and the office in walnut, paneled with mirrors. The vessel will be propelled by what is known as a double wheel, which, while in common use on Ohio river packets, is entirely new to lower Mississippi navigation. The St. James has just arrived at New Orleans and will be put in regular service at once. It is claimed that she will be far speedier than any vessel engaged in the lower river trade.

Don M. Dickinson on the Treaty of 1817.

Hon. Don M. Dickinson of Detroit, who went to Quebec last week to appear before the American members of the Anglo-American commission in the interest of the Michigan lumberman, also made a plea before he left for an alteration in wording or construction that part of the old treaty of 1817 which provides that neither Canada nor the United States shall be permitted to "build or maintain" war vessels on the great lakes. Mr. Dickinson has always taken a considerable interest in this question, and at the time of the Venezuelan dispute prepared a brief for presentation to the state department, advocating the complete abrogation of the treaty. Mr. Dickinson appeared before the commissioners at Ottawa ostensibly in the interest of the ship builders of Cleveland, Detroit, Chicago and other lake cities, and he asked that the word "build" be stricken from the old treaty. No request was made that the portion of the treaty providing for the maintenance of only one war vessel by each power on the lakes be changed. The Anglo-American commission has announced that nothing will be made public regarding the consideration of questions before the commission until the work is completed. No general hearings will be granted, and expert testimony will be utilized only on the most important questions.

Chief Engineer Harold Norton and Assistant Naval Constructor Horace L. Gillmor, U. S. N., have been ordered to report at the Armstrong works, Newcastle-on-Tyne, England, as inspector of machinery and inspector of hulls, respectively, on the cruiser Alliance, rechristened Albany, now under construction there for the United States. The Albany is the first United States naval vessel ever constructed abroad, although several of those now in service were purchased outside this country. The United States was compelled to purchase the Albany in order to secure the New Orleans, which was in service during the late war. When the purchase was made the Albany was just in frame, and under the strict neutrality provisions work upon her was immediately suspended. The Albany and New Orleans were purchased from Brazil, more because of a fear that Spain might secure them than for any other reason.

September Storms on the Lakes.

It will not be at all strange if some pretty severe storms are encountered by lake navigators in September, especially during the latter part of the month, according to records kept by the United States weather bureau. The following summary of information regarding September weather on the lakes is from a chart issued by the Washington office of the service:

"The atmospheric circulation in summer is more or less stagnant. Feeble storms or, more properly speaking, barometric depressions, pass over the lakes attended by thunderstorms and, in some cases, sharp squall winds. With the advent of cold weather the circulation becomes more active, the feeble depressions of summer give way to vigorous storms that move rapidly across the country, frequently in quick succession. The turning point in the character of the storms that visit the lake region is not generally reached until October, although at rather infrequent intervals severe storms occur in September, as in 1873, 1875 and 1878. The storm that swept over the lake region on Sept. 9 and 10, 1875, was quite severe, both as regards loss of life and property. As will be remembered by the older navigators, the steam barge Equinox and the propeller Mendota foundered on Lake Michigan with a loss of thirty-eight lives; the schooners Jno. Dunn and Onondaga and the scow M. J. Gaines were wrecked at Chicago, involving a loss for the three vessels of about \$50,000. Many other casualties occurred at various points on Lakes Michigan, Huron and Erie. While tropical hurricanes occasionally move inland from the south Atlantic coast, their energy, on reaching the lake region, is generally exhausted. In the last twenty-seven years but three such storms have endured long enough to give high winds on the lakes, the one above mentioned being the most severe.

The dangerous storms on the great lakes in September almost invariably come from some westerly direction. The violent winds are confined to the central portion of the storm, which is generally as large as the lake itself, hence there is nothing to be gained by altering the course of the ship, as might be advisable on the high seas. As has been stated, the hardest blow almost invariably occurs with the shift of the wind to the southwest or northwest, as the storm center passes the vessel. Whether the wind shifts from southeast to southwest, or backs from northeast to northwest, depends upon the position of the vessel with regard to the storm center. In September the majority of the highest winds come from a westerly quarter, west or southwest on the lower lakes, and from southwest to northwest on the upper lakes. High winds from an easterly quarter rarely prevail except at Duluth. In the latter case the direction of the wind is doubtless influenced by local topography. Light flurries of snow are encountered off Keweenaw point and over eastern Lake Superior about one year out of three."

Best Coal for Naval Use.

No little amusement has recently been created by the very persistent efforts of anthracite coal producers to secure the adoption of anthracite for the use of the United States navy and the signal failure that has attended their efforts. Engineer-in-Chief Melville has just issued a statement which demonstrates very conclusively the impracticability of using anthracite, and there is hardly a possibility that a change will be made in the character of fuel utilized for some time to come. Exhaustive tests made by the navy department having shown Pocahontas coal to be the best fuel for steamship purposes, it has been adopted as the standard coal by the navy department and is graded at 100 per cent. During the war with Spain our cruisers and warships generally used it almost exclusively, and the great value of superior fuel was never more clearly demonstrated than in the chase of the Cristobal Colon by the Oregon and Brooklyn at the battle of Santiago.

The merits of Pocahontas coal are so well known that the leading ship builders of the country have always used it in making speed trials of government cruisers, and in every case where a bonus was offered for speed, it has been earned if Pocahontas coal was used. The aggregate premiums so earned by the William Cramp & Sons' Ship & Engine Building Co. have amounted to over \$2,000,000. It is probable that the strongest testimonial ever received as regards the superiority of Pocahontas coal was in the case of the Wolff & Zwicker Iron Works, Portland, Oregon, who had Pocahontas coal shipped by all-rail from the mines in West Virginia to Portland, the cost being more than double that of Cardiff. As the coal was required for testing torpedo boats that had been built for the government, the builders evidently felt it to their interests to disregard the question of cost of the coal in order to attain the highest possible rate of speed. Pocahontas coal has also been used exclusively for years by the Cunard and White Star transatlantic steamers, and by its use all great records of recent years have been made.

Just at present the most interesting circumstance in connection with Pocahontas coal is found in the opportunity afforded American coal by the strike in the Cardiff mines to secure a firm foothold against British coal, and the anxiety of the English coal dealers on account of their inability to break this hold, now that the steamship owners, and even the consumers in foreign markets supplied by England, have an opportunity to appreciate the advantages of the American product. Large shipments of Pocahontas coal have been made to London of late, and the sale for it among steamship lines that have never used American coal of any kind is constantly increasing.

Manufacturers of ship and engine building machinery have a prospective customer in William R. Trigg, president of the Richmond Locomotive & Machine Works, who is expected to prove the lowest bidder on torpedo boats and destroyers, for the construction of which the government recently opened bids. Mr. Trigg has made arrangements to secure, in case he is awarded a contract for the construction of any of the new vessels, the use of the plant of the Virginia Machine Co. at Richmond, which was formerly occupied by the Talbot Machine Works, and also for the use of the dock of the Chesapeake & Ohio Railway Co. If he secures a contract, the old Richmond plant will at once be equipped with improved machinery.

STEEL DRY DOCK FOR THE NAVY.

SPECIFICATIONS FOR THE FIRST OF THE FIVE LARGE STRUCTURES TO BE BUILT IN ACCORDANCE WITH PROVISIONS OF THE LAST NAVAL ACT.

Specifications have been prepared for the combined floating and graving steel dock to be constructed for the United States government at Algiers, La., at a total cost of \$850,000, of which \$200,000 was provided in the last naval appropriation bill. The dock will be 525 feet in length over all, 28 feet draught of water over keel blocks, and 100 feet wide in the clear. It is to be located in the Mississippi river in front of the naval reservation at Algiers, La., in a situation with ample depth of water for its operation in docking a vessel of 28 feet draught at the lowest known stage of the Mississippi river at that point. It is stipulated that the dock, if of the balance type, must be so designed as to admit of examination and repair with ease. If desired it may be in sections and so designed as to be self-docking. The dock must be designed to lift a vessel of 15,000 tons displacement above the level of the river and with a freeboard of not less than 2 feet. The entire structure must be of steel, except the keel blocks, bilge blocks and shores, although if it is found necessary to place any portion of the accessory structures underneath the surface of the water, wood may be utilized in their construction. The power for the operation of the dock may be steam, electric, hydraulic or pneumatic, and may be generated either on shore or at some permanent structure on the border of the water front.

The dock may be constructed in any part of the country, but the final inspection and test must be made at the site at Algiers. The dock is, of course, to be constructed with every care, that vessels lifted upon it shall be free from longitudinal strain and also free from transverse strains and twisting. The dock proper will have a transverse strength and stiffness sufficient for docking a battleship 450 feet long and of 15,000 tons, with her entire weight carried by the keel blocks and with two-thirds of her weight concentrated in the middle half of her length. Docks designed as single structures must, according to the specifications, be strong and stiff enough longitudinally to safely distribute the load over the entire length of the dock, if the vessel be docked in one end, and designs for sectional docks must make adequate provision for connecting the sections, so that the dock may act as a unit and the sections be kept level and in line without straining the ship. In this way, should one of the sections lose its buoyancy, the connections of the sections will be capable of distributing over the remaining sections the weight of the injured section and all parts of the ship over the latter. The dock must not careen more than 3 degrees under the most unfavorable conditions of loading, providing for the vessel landing 2 feet off the longitudinal center line, and subject to a wind pressure of thirty pounds per square foot. The greatest longitudinal deflection will be 1 in 3,000 with the most unfavorable load, and the greatest transverse deflection will be 1 in 1,800 with the most unfavorable load.

The dock is to be completed within eighteen months from the date on which the contract is let. If there is any delay in the completion of the work a fine of \$200 per day will be imposed. In the arrangement of the moorings of the dock, allowance will have to be made for a velocity of 6 miles per hour, which is attained by the Mississippi at extreme high stages of water. With a few exceptions all steel used will be acid or basic open hearth, with a maximum strength of from 55,000 to 70,000 pounds per square inch. Bids for the construction of the dock will be opened at the bureau of yards and docks, navy department, Washington, on Oct. 31 next.

Proceedings against Minnesota Ore Railways.

Duluth, Minn., August 31.—Announcement is made that the state railway and warehouse commissioners will again take up, Sept. 6, the case against the Minnesota ore railways—Duluth & Iron Range and Duluth, Mesabi & Northern—for a reduction in ore rates. There is probably some foundation for the insinuation that the vigor of the prosecution will be lessened by reason of the petitioners having turned over on a long lease the Pioneer mine to the Oliver Iron Mining Co., but it would seem that the new interest in the mine, which is very powerful, and which is said to have threatened to build a new railway, will be even more determined than the fee owners in the effort to bring about reduced freight rates. The railroad companies are bestirring themselves in the preparation of a defense. Managers, contractors and mine operators will submit testimony purporting to show that, whereas the Duluth & Iron Range and Duluth, Mesabi & Northern railroads have been built at enormous expense, the experience of iron ore roads in Michigan and elsewhere has proven that their periods of possible profitable operation are limited. It is understood, also, that there will be submitted some rather surprising estimates of the probable time that will be required to exhaust the Minnesota ore deposits. The claim will be made that after a few years, at the most, the supply will have been depleted to such an extent that the railroad properties will be practically worthless as revenue-producing investments. There is also in circulation a wild rumor to the effect that if a reduction of rates is ordered by the state officials, both railroad companies will secure terminal facilities on the Wisconsin side of the bay, erect ore docks there, and cease the shipment of ore from Duluth or Two Harbors. With the mines in Minnesota, according to this brilliant idea, and the docks in Wisconsin, only the interstate commerce commission would have jurisdiction as to rates. It might be added, with as much sense in the argument, that if the Two Harbors railway was ripped up and its route diverted to Chicago the problem of lake freights would also be disposed of.

N. L. Stebbins of Boston has just issued the second edition of his Illustrated Coast Pilot, with sailing directions for the Atlantic and gulf coasts. The sailing directions are necessarily condensed, but are sufficient to form a guide to all harbors and channels. The volume is illustrated with a very large number of handsome half-tone engravings from photographs taken for the purpose.

Ships Will Find Markets for Surplus Products.

James J. Hill of railway and steamship fame, whose opinions on commercial subjects are always highly regarded on account of the immense interests which he represents in the northwest, declares in a recent interview that the problem of disposing of our surplus products must come largely through the restoration of our merchant marine. "Of all the plans I have seen to give back shipping to American vessels," says Mr. Hill, "none is so good as a small export bounty, say of \$2 a ton on all goods exported in American bottoms for a period of ten years. Suppose we sent out 1,500,000 tons a year, that would be a ship carrying 5,000 tons every business day, and yet it would cost the government only \$3,000,000 annually, and think of the value of the cargoes and the amount that would come back to us from such an export trade! The trouble with this country is that it does nothing for its great transportation and ocean steamship lines like the other nations of the world. The cost of ship building here is not at the bottom of the trouble, as has been maintained; we are already sending plates to Glasgow, and our pre-eminence in the steel production will soon be as great as it was in forests when our wooden ships covered every sea. Why, then, are not American lines doing the business? Because our laws and practices are against the great transportation companies."

Mr. Hill also advances the opinion that Niagara will become the great milling center of the country. "Wheat is easier to ship than flour," he says. "It is loaded by machinery and pours by gravity, while flour in barrels requires human hands to move it. I believe the line of least resistance will be to take the wheat from the Red River Valley down to Duluth, and as wheat carry it through the lakes to the Niagara water power, and there have it made into flour near the mouths of the consumers. There will always be an enormous bread market within easy reach of Buffalo, and that is the place to make flour. But the movement of an industry is not a matter of a day or a year. These are the slow changes almost of generations."

Remarkable Ship Building on the Pacific Coast.

In a letter to the Review Mr. William Moran, of the Moran Bros. Co., the well known ship building firm of Seattle, Wash., announces the safe arrival at St. Michael, Alaska, of the Moran fleet, of which so much has recently been written. The twelve vessels of this fleet, upon which construction work was only commenced on January 15th of this year, are each 175 feet in length, 35 feet in width with a molded bow and have a depth of hold of 6½ feet. They are essentially river steamers and each is propelled by a stern paddle wheel in two sections with two direct acting steam engines, with cylinder 20 inches in diameter and having a stroke of 7 feet. The hulls and deck houses are built of Puget Sound fir and the general construction is similar to that usual for vessels of this type. They are fitted with complete electric light plants, including search lights. The great problem of the whole enterprise, however, was that of delivering the vessels fully equipped for instant service at the mouth of the Yukon river as stipulated in the contract. Finally Mr. Robert Moran proposed and finally carried out the daring scheme of having this large fleet of light draught flat bottom vessels propelled by their own steam over a sea voyage of over 4,000 miles. While enroute the vessels were caught in a severe storm but slight damage to the Pilgrim was the only injury sustained. The vessels were completed May 25, set sail a few days later, and according to Mr. Moran's letter, arrived at St. Michael July 26.

Disposition of Auxiliary Vessels.

The decision to leave the disposition of the great fleets of auxiliary vessels secured for service during the war to a special board appointed by the navy department will probably prove as satisfactory a plan as can be proposed to the men connected with shipping interests. Very naturally the marine men and ship builders of the country would like to see the government retain permanently as many of these vessels as possible. Next to that their only concern is that vessels purchased by the government from foreigners shall not be auctioned off in this country. The special board is to take up the matter of how many vessels shall be retained. It is, moreover, welcome news that the engineering and construction corps are to have a representation on the board. Many of the swiftest cruisers now in the south will be retained, notably the four Morgan liners. A special recommendation for their retention in the regular service is to be found in their high speed and great steaming radius, with coal carrying capacity greater than any of the modern cruisers. Probably not more than half a dozen of the yachts on hand will be retained. The colliers, which were sold to the government at fixed prices, will, it is expected, be retained, as will also the several distilling ships, the hospital ship Solace, the repair ship Vulcan and several of the provision vessels. A few tugs will also be held. The bureau chiefs of the department are unanimously in favor of the retention of a number of vessels of each type.

New Route for Steel Canal Boats.

In all probability, should the Welland canal tolls be abolished, a new route will be adopted for the steel canal boats trading between Lake Erie ports and New York city. At present the boats on their way to New York traverse the entire length of the Erie canal, but Manager C. E. Wheeler of the Cleveland Steel Canal Boat Co. stated to the Review, a few days ago, that if the Welland tolls were remitted it was probable that the company's fleets would in future pass through the Welland and across Lake Ontario, reaching the Erie canal at Oswego. This would save approximately 100 miles of Erie canal travel, and would, Mr. Wheeler estimated, reduce the time of each single trip a full day. The Gamma, one of the steamers of the steel canal boat fleet, recently broke all records by making the trip from Cleveland to New York in eight days, seventeen hours and fifteen minutes. The performance will be appreciated when it is stated that from eight to ten days is frequently required for an ordinary canal boat to make the trip from Buffalo to New York. The Gamma is the same steamer which last season attracted attention by making the trip from Toledo to New York and return in twenty-two days.

SPEEDY BATTLESHIPS.

UNIVERSAL DISPOSITION ON THE PART OF FOREIGN POWERS TO ACQUIRE WAR VESSELS OF THIS DESCRIPTION.

The decision on the part of the board of naval construction to give preference in the consideration of the bids for new battleships, opened today (Thursday), to firms guaranteeing to vessels a speed of 18 knots or more, has by no means lessened the ardor of the discussion among naval architects and officers. The relative merits of the slow and speedy battleships are argued with no little vigor. A new series of arguments for both sides has been found, too, in the engagement of the American vessels with Cervera's fleet. The advocates of the less speedy battleship have not as yet made public many of the reasons which have influenced them in their adherence to this type of fighting ship, but certainly their opponents have not been lacking in the vigor of their argument. Stress has been laid, for instance, on the speed qualities of battleships building or recently completed for other nations. Great Britain has building the Canopus, Goliath, Ocean, Albion, Glory and Vengeance, all of which are expected to attain speeds approaching 19 knots. France, it is claimed, has eight battleships that are speedier than any in the American navy, among the number the Charles Martel, which on a four-hour speed trial in May, 1897, made 18.13 knots with 15,000 indicated horse power. Germany has in the planning of her new vessels also made speed a requisite. The Kaiser Friedrich III., launched in July, 1896, is a triple screw battleship with engines designed to give 13,000 indicated horse power and a speed of 18 knots. The new Kaiser Wilhelm II., launched last year, and the Konig Wilhelm, under construction at Kiel, are sister vessels with the same displacement and speed as the above. Italy last year launched the Ammiraglio di Bon, a battleship designed to attain 18 knots. The Emanuel Filiberto is a sister ship, while the Sicilia at her speed trial in 1895 is claimed to have made 19.3 knots. Russia has three battleships, the Poltava, Petropavlosk and Sevastopol, each with engines of 13,500 horse power, designed to give a speed of 17.5 knots. The new Russian vessel on which the Cramps are at work is to have a speed of 18 knots. The two Japanese battleships, Fuji and Yashima, launched in March, 1896, each have propelling engines of 13,500 horse power and call for 18.25 knots. The advocates of the swifter type of battleship therefore point to the fact that there are in commission, or building, fifty battleships with speed capacities from one to three knots in excess of that of any battleship in the United States navy.

From the standpoint of the accomplishments in years past the advocates of the speedier boat would seem to have the best of the argument. Paul Jones, it is pointed out, had a speedier vessel than any of the old British frigates, and won many of his victories by the possession of this speed. In the war of 1812 this country won because it followed the policy of constructing a class of vessels of moderate size that could outsail the British frigates, although outmatched in size and weight of metal. The President, Essex, Chesapeake, Wasp, Peacock, Enterprise, Adams and Siren, with finer lines and more canvas, outsailed and outmaneuvered the hostile ships.

In this connection, too, it is most interesting to note the view of the situation taken by William Laird Clowes, the English naval critic and for many years a contributor to Lord Brassey's Naval Annual, who, in his treatise in a recent number of the Engineering Magazine on "Sea Power at the End of the Nineteenth Century," says: "We may be sure that the unscientific method of preparing for war and of waging it is always, in the end, the most expensive way; and we may take it that, while no factor of sea power can be neglected with impunity, the neglect of no factor is so fraught with danger, suspense, anxiety and waste of money as the neglect of that group of elements constituting mobility, and at the head of them stands, undoubtedly, speed—locomotive speed—with, as its complement, coal endurance. We are told that every warship is, of need, a compromise. But there are wise compromises and foolish ones. The compromise which, in any serious degree sacrifices speed to guns, armor and magazine capacity, seems to me to belong to the latter category. The lesson of all recent naval wars is that the point upon which it is most perilous to make concession is the point of speed. You cannot afford to compromise on the element of speed to a greater extent than your neighbors have compromised or are compromising. Some powers have already begun to realize and act upon this truth. The Argentine Republic—though in common estimation but a fourth-rate state—has spared neither pains nor expense to acquire the fastest cruisers in the world. Speed will tell more than any other single factor in the naval warfare of today and tomorrow; and we may, I think, rest assured that although speed is one of the most expensive requirements of a navy, it is, in the long run, the most economical, because it is the most time saving, anxiety saving and money saving quality with which we can endow a warship."

Mr. Clowes compares the British cruiser Terrible and the Argentine cruiser Buenos Aires much to the disparagement of the former. The Terrible has a displacement of 14,200 tons to 4,500 of the Buenos, and an indicated horse power of 25,000 as compared to the Argentine vessel's 13,000, yet the mean trial speed of the Terrible was only 22.4 knots, compared to 23.2 knots on the part of the smaller vessel. The Terrible, therefore, though three times as big and three times as costly, is nearly a knot slower, carries less than 50 per cent. more coal per horse power, and throws less than double the weight of broadside.

Bids were asked this week on the institution of an important naval coaling station at New London, Conn. It is the intention to erect here the most extensive coal shed, piers and facilities for loading vessels with coal yet built for the navy. Congress, at its last session, appropriated \$200,000 for the work. Designs for sheds provide that they shall be erected on the end of a long pier in order that vessels may tie up alongside and load direct.

From Sept. 5 to 10 there will be a great gathering of the boys of '61 at Cincinnati for their national encampment. The Nickel Plate road sells tickets to that point at very low rates. For complete information address any agent of the Nickel Plate road, or B. F. Horner, general passenger agent, Cleveland, O. Sept. 2, 1892

Around the Lakes.

Dr. W. D. Carmichael, who has been in charge of the marine hospital at Cleveland, has been appointed superintendent of the marine hospital service of the Hawaiian islands, with headquarters at Honolulu.

Capt. Levi Hunt, who died last week at Eden, N. Y., began sailing on the lakes as a boy of fifteen, and continued for upwards of thirty years, during the latter portion of which period he was in command of some of the best known steamers on the lakes.

Assistant Secretary Howell of the treasury department has written to collectors of customs at Marquette and Duluth, and the deputy at Superior, informing them that they have been wrong in charging a fee of \$2 for Canadian vessels clearing at the ports mentioned.

Cleveland dry docks, which are all owned now by the Ship Owners' Dry Dock Co., will hereafter be known by numbers. The larger dock at the west end of the old river bed will be No. 1 and the dock adjoining it No. 2. The dock that was formerly known as the Cleveland Dry Dock will be No. 3.

Another light is announced for Lake Michigan. About Sept. 15, a fourth order light, showing flashes alternately red and white, will be established in the structure recently erected at the North Manitou fog signal station, on the point making off to the eastward from the southerly part of North Manitou island.

Capt. M. M. Drake of Buffalo presented at a meeting of the board of trustees of the Buffalo Merchants' Exchange, a few days ago, a resolution thanking Mr. Harvey D. Goulder of Cleveland for the successful manner in which he represented the vessel interests of the country in the matter of war tax on charters. The resolution was unanimously adopted.

H. W. Hubbell & Co., while dredging, last week, in the channel about a mile above the Sault canal, raised the remainder of the wreck of the old steamer Independence, which was the first steamer to ply on Lake Superior, and which was blown up early in the fifties. Capt. Geo. P. McKay of Cleveland was wheelman on the Independence when the accident occurred.

The passenger and freight steamer Wisconsin will be withdrawn from service on Lake Michigan about Sept. 25 and will go to Ferrysburg, Mich., for a general rebuild that will fit her for winter service. New Scotch boilers and considerable new steel work between decks for strengthening purposes are the main features of improvement. The work will be done by Johnston Bros. of Ferrysburg.

When the steamer Thomas Cranage was docked at Milwaukee, a few days ago, for a new wheel, it was found that her bottom was badly damaged as a result of striking above the Canadian canal last spring. It was thought when the accident occurred that the damage was of little account, but the Cranage will probably be in dock for fully three weeks. It is probably well for the owners of the vessel that circumstances have caused the work to be done at the Milwaukee yard, as reports of late regarding repair jobs on both steel and wooden vessels have been very favorable.

When Buffalo coal shippers have hard coal to move, they do not make a great deal of fuss over 5 or 10 cents advance in freights. Although hard coal shipments from Buffalo to Sept. 1 aggregate 1,242,000 tons, against 952,000 tons on the same date a year ago, the Buffalo shippers have for several days past been paying 5 cents a ton over Ohio port rates on Lake Michigan cargoes. The margin on which hard coal is sold is not, of course, as large as that which prevails in the soft coal trade. But there is another reason for paying advanced rates out of Buffalo. Hard coal shipments this year will exceed those of 1897, and the Buffalo shippers, anticipating activity in other lines later on, are trying to move the great bulk of their coal as soon as possible.

Engine Work in Detroit.

Detroit, Mich., Aug. 31.—No arrangements have as yet been made for repairs on the side-wheel passenger steamer Greyhound, whose engines were demolished while in regular service on the river route a short time ago. This engine wreck is so complete and will involve so much expense to the owners of the Greyhound, with no possibility of getting further service from her this season, that they are considering some alterations and improvements in the vessel in connection with the engine repairs. The wreck, due to the connecting rod breaking about 3 feet from the crank end, probably when the piston was at the top of the cylinder, is about as complete as anything of the kind that has occurred on the lakes of late; cylinder, condenser, air pump and other parts are demolished.

The accident to the engines of the freight steamer Iron Age is also a bad affair. In her case the stop on the crank pin broke, letting the pistons shoot up, breaking everything above the bed plate and crank shaft. The Dry Dock Engine Works has begun the construction of another engine, using only the old bed plate and crank shaft, and Supt. C. B. Calder says he expects to have the steamer in commission again in about six weeks. The engine works has been unusually successful with repair jobs under Mr. Calder's direction, and he seems to have the confidence and friendship of vessel men in Chicago, Cleveland and other places as well as Detroit. This friendship is, of course, of advantage to the Detroit concern. Cylinders of the steeple compound engine in the Iron Age were 24 and 44 inches diameter by 32 inches stroke. In the rebuilt engine the sizes will be 20 and 44 by 32.

"Anglo-Saxons, Onward," is the attractive title of a novel just written by Mr. Benj. Rush Davenport, who is well known in vessel circles around the lakes. Two or three vessel men of Cleveland are interested in the publication of the book, among them W. H. Becker, who holds the copyright. Mr. Davenport is the author of several works that have had a very large sale, and it is thought that this one will also meet with success on account of the popular interest just now in everything with which the term Anglo-Saxon is connected.



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The predictions made regarding activity in shipping circles likely to follow the close of the war seem in a fair way to be justified. Officials of the Atchison, Topeka & Santa Fe Railroad Co. announce the completion of negotiations whereby the road will be operated in connection with the newly organized California & Oriental Steamship Co., a \$5,000,000 corporation, of which A. H. Butler of San Diego, Cal., is president. Messrs. M. Stanley Tweedhe and L. B. Stoddart, vice-president and treasurer, respectively, are now in England for the purpose of purchasing two fast freight and passenger vessels. Sailings will be made every twenty-five days from San Diego for Yokohama and Hong Kong, touching at Honolulu. The service will eventually include Manila, if that port remains in the possession of the United States. At New Orleans there has been organized the New Orleans Initial Line for Havana. Ten steamships, including the *Ethiopia* of 4,000 tons, will be placed in the Cuban trade. A representative of a United States syndicate is at present in Venezuela investigating the advisability of establishing a line of steamers to ply between New York and Venezuela, touching at St. Thomas, St. Kitts, Guadeloupe, Martinique, the Barbadoes and Trinidad.

Trials of the British torpedo boat destroyer *Surly*, fitted with apparatus for the consumption of oil fuel, have been so satisfactory that the admiralty has notified the contractors who supplied the machinery that they will purchase their plant and continue the trials at the expense of the government. The use of oil fuel in torpedo boat destroyers is especially desirable, for the reason that the number of stokers which destroyers find it necessary to carry when working with coal proves a serious inconvenience.

A great reception is to be tendered Mr. Irving M. Scott of the Union Iron Works, San Francisco, upon the occasion of his arrival home from Russia by the Merchants' Association of San Francisco. The reception is, in reality, tendered to everyone who had anything to do with the construction of the cruiser *Olympia* and the battleship *Oregon*, built by the Union Iron Works, but Mr. Irving Scott is to be the guest of honor. It is expected that all the commercial and industrial organizations in San Francisco will take part in the reception.

A very handsome compliment has just been paid to the William Cramp & Sons' Ship & Engine Building Co. by Naval Constructor Ito, who represented the Japanese government at the Philadelphia yard during the construction of the cruiser *Kasagi*, now nearing completion. Said he: "I believe that the *Kasagi* will prove to be one of the most serviceable vessels of her class afloat. She has already developed 20½ knots, and we believe she can do even better than that."

Another of the large Delaware river ship building plants seems to be figuring for naval work. No effort has been made by the Roach ship yard, Chester, Pa., to engage in government contracts since John Roach's unfortunate difficulties with the navy department began, some fifteen years ago. The last congress settled matters with Mr. Roach's heirs, and when proposals for torpedo boats and destroyers were opened a few days ago, the name of the Chester concern was found among the bidders.

Representative Sherman of New York, author of the bill introduced at the last session of congress providing for the construction of eight revenue cutters at a cost of \$250,000 each, called on President McKinley last week and outlined a plan to have all the available yachts in the auxiliary fleet transferred to the revenue cutter service. There is understood to be about six of these yachts, including the *Gloucester*, available for this service.

There is now under construction in England for the Japanese navy a battleship that will rival the *Majestic* of the British navy, at present the largest war vessel afloat. The new Japanese vessel will be 400 feet over all and 75 feet beam, but with a displacement of 15,100 tons will draw only 27 feet of water. She will have a coal capacity of 1,500 tons and her armor alone will cost \$2,500,000.

Plans of the navy department for a storage house at the Boston navy yard, in which to shelter torpedo boats when out of commission, contemplate an expenditure of \$150,000. It is proposed to have this storage plant include a circle of iron sheds, radiating like the spokes of a wheel, a shallow circular wet basin, a pontoon cradle dock and a small dry dock.

Capt. William H. P. Hains, who for the past forty years has officiated as fleet captain of the Cunard Line, and who during that time had successively commanded practically all of the Cunard liners, died a few days ago at Liverpool, aged seventy-five years. He had crossed the Atlantic over 600 times.

Smokeless Powder in the Navy.

Indications are that the navy department will now proceed without delay to the consummation of its plans for the erection of the factory for the manufacture of naval smokeless powder, for which the sum of \$93,927 was set aside by the last naval appropriation bill and is therefore available at any time for the construction of buildings and the purchase of machinery. The question of the relative magnitude of the advantages and disadvantages to accrue necessarily from the use of smokeless powder in naval engagements has long been a topic of discussion and not a little argument among the best informed men of the naval service. Most of the arguments advanced on either side have been those which would naturally occur to a layman, and the principal point at issue has been whether the advantage of clear and distinct targets for the gunners would be outweighed by the accordance of the same privilege to the enemy. The officers who participated in the naval engagement at Santiago, if advocates of the good points of smokeless powder would appear from unofficial reports to have had their belief strengthened rather than otherwise. It is stated that by reason of the incessant firing of the American vessels there was always banks of smoke of greater or less size hanging over some of the ship's batteries, and this, too, notwithstanding the fact that the enemy was to windward and a gentle breeze was blowing. Indeed so serious was the inconvenience that the firing of the guns had to be slackened again and again, and in the opinion of many of the officers of the cruiser *Christobal Colon* would not have been so slightly damaged had it not been that the smoke from the several minutes' engagement with the leading vessels, combined with the smoke from the firing of the small quick-firing guns, formed a cloud of such size and density as to practically prevent the training of the heavier guns. This explains in a great measure the fewness of the shots fired from the 13-inch guns during the latter part of the battle. With a quick-fire gun, the advocates of the smokeless powder point out, any temporary lifting of the smoke will afford time to deliver a fire, but the claim is made that in order to train the heavier guns with any degree of accuracy the range must be unimpeded for some time.

The advocates of the smokeless powder are also ready with an answer to the arguments of their opponents of the protection afforded to vessels concealed by dense banks of smoke. They argue that inasmuch as the firing from the various batteries is never simultaneous, some portion of the ship is bound to be exposed all the time, and that with this assistance as a range-finder the enemy would be enabled to lay his guns with sufficient accuracy to do effective service. The recent engagement is, however, void of any particular teachings on this point, inasmuch as the vessels of both fleets, with the exception of the *Colon*, used the regulation powder, while the *Colon* was handicapped by having no heavy guns in her turrets.

In connection with the determination of the department to erect its own factory for the manufacture of smokeless powder, it is stated that the quality of the article supplied by the firms at present holding the contract for furnishing the navy is entirely satisfactory, but Capt. Charles O'Neil, chief of the bureau of ordnance of the navy department, concluded some time ago that it would be best for the government to own a plant which would of necessity be independent of strikes and shut-downs, hence the preparation of the plans which he has just completed. The new factory will be located at the Indian Head proving ground and will border on an estuary of the Potomac river, which is of sufficient depth for vessels of 14 feet draught. There will be twenty buildings in the plant, which will have a capacity of 1,000 pounds of powder per day. The plans are in preparation in the ordnance bureau and at the Washington navy yard, and the various structures will be erected by government employees. A trolley road will connect the powder factory with the proving ground and extraordinary precautions for safety will be taken. The present plan contemplates the completion of the factory ready for operation within a year.

A Marine Academy Project.

Mr. J. G. Lamson of West Bay City, who proposes to establish a marine academy on the lakes, has outlined the project for the Review. He is now endeavoring to secure a schooner about 120 feet keel by 26 feet beam, which will constitute the academy, and is expected to accommodate about forty-five pupils with instructors and officers. If Mr. Lamson's plans are carried out he will have classes so arranged that the students will have regular hours for ship's duty, study, recitation and recreation. The course of study will include modern languages, science, mathematics, seamanship, etc. It is the purpose to begin school work early in the new year, devoting considerable time to training the students in the handling of the vessel, in order that they may be prepared to take entire charge of the vessel when the season of navigation opens. The course furnished for text-book work will be so arranged as to lead either to business life or to sailing.

Plans for schools of this nature do not usually meet with support from lake vessel owners, who are in most cases of the opinion that ship masters of the kind that are wanted on the lakes are made not in nautical schools but by actual training and advancement in the various lines of employment aboard ship. We have in mind one manager of a large line of steamers controlled in Cleveland—it is one of the very largest—who recently upheld and even congratulated the local steamboat inspectors upon refusing to advance the papers of one of his men who made an appeal to the supervisors on the strength of nautical school knowledge. The local inspectors held that the applicant's practical knowledge and experience were not sufficient and refused to advance him. In such cases they will always be supported by owners, who want reliable men aboard their ships.

The dry dock at the yard of the William Cramp & Sons' Ship & Engine Building Co., at Philadelphia, is now occupied by the steamer *Caracas* of the Red D Line, which is being cut in two preliminary to being lengthened. The *Caracas*, which was built by the Cramps in 1889, is 283 feet 6 inches in length. An addition of 28 feet is to be made, increasing the vessels register 500 tons. The Cramps have successfully lengthened many vessels, including Jay Gould's yacht *Atalanta*.

Cleveland's Consolidated Dry Docks.

The accompanying view of dry docks, power house, etc., at the western end of the old river bed, Cleveland, gives a fair idea of the extent of property involved in one of the plants entering into the recent consolidation of Cleveland dry docks. This is the larger plant, that of the Ship Owners' Dry Dock Co., which, with a capital now aggregating \$750,000, is in control of all three of the Cleveland docks. The smaller dock property, known before the consolidation as the Cleveland dry dock, and which is situated nearer the main river, is not as large as the works shown in the engraving, but the equipment is modern in every way.



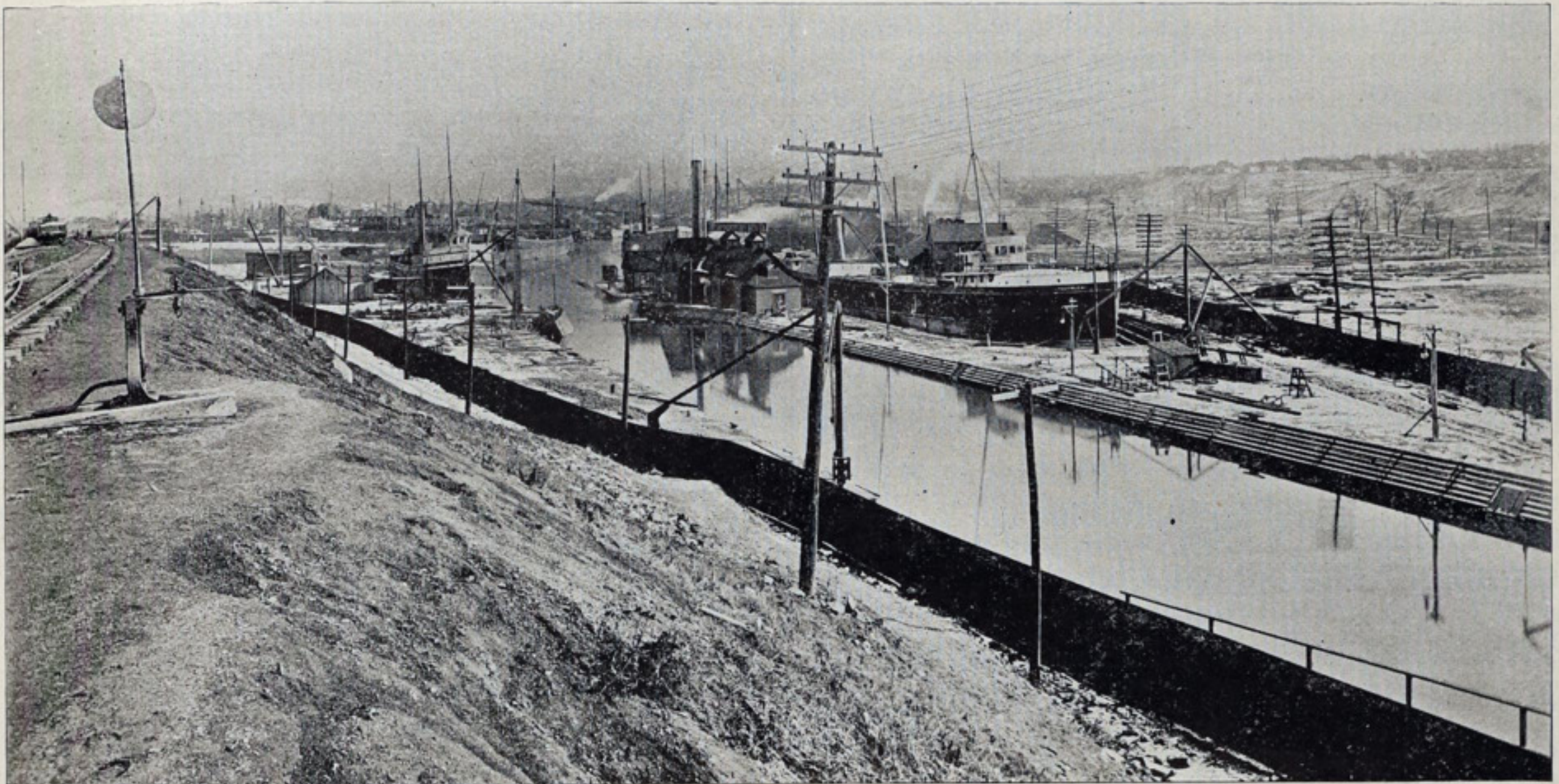
CAPT. W. W. BROWN.

It is now quite probable that the amount of ship repairs to be undertaken on lake vessels during the coming winter will be much larger than for some time past. It would seem that freight rates, already improving, will have advanced sufficiently before the season is at an end to admit of fair earnings, even with the smaller class of vessels, and a part of these earnings will to some extent be applied to necessary repairs and to improvements in some of the vessels. Then, too, the requirements

American Ship Yard Tools for China and Japan.

Anyone who has given the subject even the most superficial attention cannot have failed to note the wonderful progress made in the introduction of American tools and machinery into the manufactories of foreign industrial nations. That foreign competitors are becoming deeply concerned regarding the results of this American aggressiveness is shown conclusively in a lengthy editorial in the current issue of the Engineer, noted as intensely British in all its utterances. Among other things it is stated: "Anyone who is much in the habit of visiting the large industrial establishments of this country cannot avoid seeing how rapidly American labor-saving machines are being utilized. Specific instances are constantly coming to our notice of this; instances where British manufacturers, who have been fighting all their lives against using American machines, have latterly, through failure to get what they wanted in England, been compelled to adopt foreign-made lathes and other special machines, and now they say they would not be without them."

Better still is the announcement that obstacles are gradually being overcome and our labor-saving tools and machinery are securing a firm foothold in such countries as China and Japan. The latest evidence of this is found in an order just received by the Chicago Pneumatic Tool Co. for an immense consignment of riveters, hammers and drills for the Imperial Chinese Railway. This is the second order of this kind for tools for use on this road. Mr. J. W. Duntley, president of the company, is in New York at the present time completing arrangements for the ship-



MAIN PLANT OF CONSOLIDATED DRY DOCK COMPANIES IN CLEVELAND.

of underwriters have become more exacting of late, and the outlook in the ship yards from the standpoint of repairs is probably more promising than from what may be expected in the way of new ships.

"With these points in mind," says Capt. W. W. Brown, secretary and manager of the consolidated docks, "it may not be out of place to direct attention publicly to the advantages of our facilities under the new arrangement of dry dock affairs in Cleveland. The impression may have gone out that the consolidation will work to the disadvantage of vessel owners, but this cannot be, as we have competition close at hand in other ports, and we must use every effort to do the best of work and satisfy the ship owner in all respects. We have a special advantage to offer to all vessel owners now in the fact that with all of the Cleveland docks under one management delays will be reduced to a minimum, as it will probably never happen that a dock will not be ready when it is required for an emergency case. The largest dock of the three is equal in dimensions to all but a few of the very largest lake carriers, and when it is found necessary to enlarge the plant, on account of a further increase in the number of big ships, funds will undoubtedly be available for the purpose. The work of Cleveland vessel owners should be done here under their supervision or under the supervision of their representatives. It is, of course, understood by them that the prices are the same everywhere, and that the consolidation will have no bearing in this regard. We are planning to serve the Cleveland owners so as not to allow any of their work to go away from Cleveland. This may appear somewhat boastful, but I would not be serving my company rightfully if I did not announce this intention, so as to let the vessel men know that we want simply an opportunity of proving it to them."

It is only a few years since Capt. Brown, who is now determined to make a success of the consolidated docks, was sailing lake vessels. He was selected for the management of the Cleveland dry dock (smaller of the consolidated plants) without solicitation. He was largely instrumental in bringing about the consolidation, and will undoubtedly prove equal to the large undertaking which he now has in hand.

ment to Japanese firms of thirty-six pneumatic tools and three compressors. A number of orders have also been received within the past few days from Europe. That foreign manufacturers are willing in some cases to place orders for these tools without a personal inspection of the work of which they are capable, is by no means strange in view of the magnificent catalogues issued by the Chicago company. The latest of these catalogues is filled with autographic endorsements of the tools from the most prominent ship builders and manufacturers in this country, and is illustrated from photographs which show every phase of the operation of the tools described. Accompanying this catalogue are three wonderfully artistic "special editions," devoted to the description and illustration of riveters, rammers and drills; wood boring machines, breast drills, car jacks and painting machines; and the exhibit of the Chicago Pneumatic Tool Co. at the recent Saratoga convention of the master car builders and master machinists.

"We have made thousands of pounds, this season, of cast brass, bronzes and similar metals for one boat building concern on Lake Michigan," says Mr. Taylor of the Standard Brass Works, Kalamazoo, Mich., "and we are anxious to secure a few more customers for this kind of work. If some of the readers of the Review who are making launches and other small boats will write us, we are satisfied that we can quote them the right kind of terms."

The report that a light-house supply depot will be established at Charlevoix has not been authenticated. Commander C. O. Allibone of Chicago, light-house inspector of the ninth district, in a letter to the Review states that the light-house board has not announced its decision in the matter.

Toronto or Niagara, at low excursion rates, via the Nickel Plate road, Wednesday, Sept. 7. Special train leaves Cleveland at 5:30 a. m.; \$3.00 to the Falls, \$4.00 to Toronto and return. The Toronto exposition is now at its best.

Sept. 6, 1914

Ship Building on the Delaware.

Philadelphia, Aug. 31.—At the six principal ship yards on the Delaware river there are now thirty-seven steel vessels under way, all but six of which are for merchant service. The exceptions are the three battleships and a cruiser, on which the Cramps are at work, and two torpedo boats—one at the Hillman works and the other at the Harlan & Hollingsworth plant. No small craft are included in this summary; seagoing tugs costing \$100,000 or more are the smallest of which note is taken. About half of the list of thirty-seven have been launched, but there is, of course, considerable work to do on them before they leave the ship yards. Following are summaries from the several yards:

Wm. Cramp & Sons Ship & Engine Building Co., Philadelphia—Battleship Alabama for United States navy and Kasagi for Japanese navy, together with a battleship and cruiser for Russian navy; two steamers for New York & Cuba Mail Steamship Co., each 376 feet long; four steamers for American Mail Steamship Co., each 292 feet long.

Hillman Ship & Engine Building Co., Philadelphia—Torpedo boat Mackenzie for United States government; three steel tugs for Staples Coal Co., each 140 feet long, and a tug 102 feet long for Standard Oil Co.

Neafie & Levy Ship & Engine Building Co., Philadelphia—Steam pilot boat 141 feet length for Pilots' Association; tug 170 feet length for Philadelphia & Reading Ry. Co.; tug 93 feet length for Michael Moran, New York; tug 108 feet length for Peter Cahill, New York; tug 100 feet length for Capt. Pesel, Charleston, S. C.

J. H. Dialogue & Son, Philadelphia—Three tugs, one each for Louis Luckenbach of New York and J. M. Walsh of Mobile, Ala., and the third on builders' account.

Roach Ship Yard, Chester, Pa.—Yacht Sylph, 150 feet, for United States navy; steamer Cape Charles, 233 feet, for New York, Philadelphia & Norfolk Railroad; tank steamer Ajax for Standard Oil Co.; ferry boat Philadelphia, 206 feet, for Pennsylvania Co.; steamers Hamilton and Jefferson, first-class passenger and freight vessels, each 327 feet, for Old Dominion Steamship Co. of New York; yacht Aileen, 150 feet, for Richard Stevens of Hoboken.

Harlan & Hollingsworth Co., Wilmington, Del.—Steamer Tennessee for Old Bay Line; tug Valley Forge, 157 feet, for Philadelphia & Reading Ry. Co.; tug Gem for Standard Oil Co.; torpedo boat Stringham for United States government; two freight and passenger steamers, each 274 feet length, for Merchants' & Miners' Transportation Co. of Baltimore; steamer S. T. Morgan for Virginia Chemical Co.

New Ship Yard Contracts.

The Iowa Iron Works, Dubuque, Ia., will build a \$35,000 steamer for Capt. R. F. Learned.

W. C. Hayden of Kingston, Ont., will build a house boat 96 feet in length by 28 feet beam.

The new iron vessel upon which work has just been started at the Sewall yard at Bath, Me., will be 20 feet longer than the iron vessel launched there a few days ago.

F. S. Robertson of Scotland Neck, N. C., has secured a contract for a large new ferryboat, to be built by the Scotland Neck board of trade for service on the Roanoke river.

The steamer George Mack, designed for Hudson river service, was launched at Michael Doran's ship yard, Durhamville, N. Y., last Saturday. She is 98 feet in length by 17½ feet beam.

The Neafie & Levy Co., Philadelphia, has just taken an order for a steel tug from Capt. Pasel of Charleston, S. C. She will be 100 feet in length, 20 feet beam and 11 feet depth of hold.

Officials of the Earn Line Steamship Co., whose vessels formerly plied between Philadelphia and St. Jago, announce that should Cuba be annexed they will contract for American-built steamers.

It is again reported from Philadelphia that officials of the American Line are negotiating with the Cramps for new ships of the Atlantic express type, but there will probably be nothing definite in the matter until an adjustment of affairs of the American Line with the government, due to the charter of the St. Louis and St. Paul and the sale of the Paris and New York, is secured. It would seem, however, that the American Line, as well as some of the other Atlantic companies, will be called upon to make big expenditures for new ships if they are to keep up with the German lines that have been adding to their fleets at a wonderful rate of late. The leading German ship builders are crowded to their fullest capacity on the numerous orders that have been placed with them recently by the Hamburg-American and North German Lloyd companies. The latest Hamburg-American express steamer, which is well under way at the Vulcan works, Stettin, will have 34,000 horse power, or 6,000 more than the Kaiser Wilhelm der Grosse. She will have twelve double-ended and two single-ended boilers.

Mr. John Craig of the Craig Ship Building Co., Toledo, returned from the Pacific coast recently with a very favorable opinion of the facilities of ship yards in the Puget sound district and in California. Mr. Craig went to the Pacific to look after the work of putting together the various parts of a small vessel that was built at Toledo for service in Alaska. "The Pacific coast works," he says, "are fully equal to all that may be required of them on account of the more active ship building operations of the past year. The Union Iron Works of San Francisco is capable of bigger things than most people in the east give them credit for. They carry 3,000 tons or more of material in stock all the time, and I understand that they do not care to be bothered with tugs or small vessels of the kind that the United States engineers and other government departments have to build occasionally. It was said that they were not at all anxious to get any part of the torpedo boat order unless they could secure a contract for four or five of the vessels."

Trade Notes.

The Frontier Iron Works of Detroit is to furnish a 75-horse power gas engine to drive machinery at a plant to be erected by the Norway Electric Co. near Norway, Mich., for the purpose of making experiments in the electric smelting of ore.

The Sheriffs Manufacturing Co. of Milwaukee has shipped two 4-foot wheels, a right and left, to Milford, Del., for the steam yacht Delaware; a wheel of 9 feet 5 inches diameter and a new shaft to the tug Protector at Bay City, and a new crankshaft to the tug Lorain at Port Washington.

The Sheriffs Manufacturing Co., of Milwaukee, has just placed new wheels on the steamers Alice M. Gill, George Burnham, Goodrich liner Georgia and Thomas Cranage. Recent orders received were for the shipment of four wheels to Duluth, one to New Orleans, a 9-foot wheel to Montreal, and a small wheel for export.

The McMyler ore unloading plant at Conneaut has some excellent records to its credit this season. All previous records were broken on August 30 when in twelve hours there was transferred from vessels to cars and dock piles an aggregate of 13,248 tons. The McMyler equipment on this dock consists of fifteen ore conveyors and four groups of three rapid ore unloaders.

The steam yacht Orienta, owned by Mr. Edward R. Ladew of New York, broke her main shaft the morning of the naval review in New York harbor. An order for a new shaft was immediately placed with the Bethlehem Iron Co., South Bethlehem, Pa., and through their quick delivery of the new shaft it is hoped the yacht will be placed in commission again at an early date.

The Bethlehem Iron Company, of South Bethlehem, Penna., has been asked to bid on the forgings for the engine and shafting of a torpedo boat to be built in Japan for the Imperial Japanese Navy. The line of shafts, including the thrust and crank shafts, are to be hollow. It may be remarked that the Bethlehem Iron Company is the only concern in this country that has been asked to bid on this work.

The purchasers of marine hardware will find a veritable revelation in the very complete catalogue just issued by the Thomas Laughlin Co., of Portland, Me. The volume, which is quite good-sized, is illustrated, and lists everything imaginable in the way of marine hardware, tackle blocks, galvanized ship, yacht and boat trimmings, and general iron work in wrought, malleable and cast iron. The catalogue will be sent free to applicants.

The Carnegie Steel Co. of Pittsburg, says the Iron Trade Review, has been awarded the contract for furnishing 2,500 tons of armor plate for the Russian battleship to be constructed at the Cramp yard at Philadelphia. The armor will be made by the Krupp process and the contract price is \$640 per ton. The Carnegie company also made a shipment last week of 4,716 tons of armor plate for the Russian government. Some rails for the Trans-Siberian railway were also part of the shipment.

The Government of Victoria, Australia, has placed an order with the General Electric Company for six Thompson recording watt meters of 100 volts and varying capacities. These will be deposited in the electrical bureau of the home office of Victoria, and will be used as the official standards, by which all electricity meters used in the colony will be tested. In future no meters measuring electrical energy will be allowed to go into service in Victoria unless they agree with those just ordered and receive the final sanction of the Victoria government.

The Baldt Anchor Co., of Chester, Pa., has received an order for 100,000 pounds of their latest improved type of Baldt patent stockless anchors for export trade. The firm also has on hand orders for over 100,000 pounds of anchors ranging from 20 to 12,000 pounds in weight. The Baldt anchors, which are made of the finest quality or open hearth steel and guaranteed to stand a tensile strength of not less than from 60,000 to 70,000 pounds per square inch, have been adopted by the Lloyd's inspectors and surveyors where other stockless anchors were rejected. The agency for the Baldt anchors is held by Mr. Walter Miller of Cleveland and Mr. Thomas Price, of 136 Liberty street, New York.

The estate of C. M. Robertson, Montville, Conn., recently lost by fire their boiler house. In order to obviate, if possible, a like experience in the future, they have decided to put up a structure thoroughly fire-proof in its place. The building will have steel framework, brick side walls, and an absolutely fireproof roof, consisting of corrugated iron covering laid on the Berlin Iron Bridge Co.'s patent anti-condensation roof lining. Steel trusses will support the roof. The building is about 50 feet square, divided by a corrugated iron partition through the center, making a boiler room and pump room. Ventilation is obtained by monitors on the ridge of the roof, having sash on the sides. The Berlin company is furnishing and erecting the steel work.

In the demand that sprung up during the war for marine machinery and navy supplies, the government found all of the large eastern concerns ready to work night forces and do all in their power to keep up with rush orders. The orders connected with the fitting out of auxiliary naval vessels were especially urgent, and requirements in all cases were for the best of material. "We were pushed to our fullest capacity on this kind of work," says a representative of the United States Metallic Packing Co. "Most of our work was for the St. Louis, St. Paul, Harvard, Yale and some of the army transports. Among lake vessels on which our packing is used are the Superior City and other steamers of the Wolvin line. It was used on account of the exceedingly high steam pressure on these ships, which are fitted with Babcock & Wilcox water tube boilers. We have furnished packings to hold 2,500 pounds pressure for air compressors of the dynamite cruiser Vesuvius. In addition to regular business in packing piston rods and valve stems, we are furnishing packing for reversing engines and other auxiliary machinery. This is important, as auxiliary machinery is usually wasteful of power, on account of being improperly packed."

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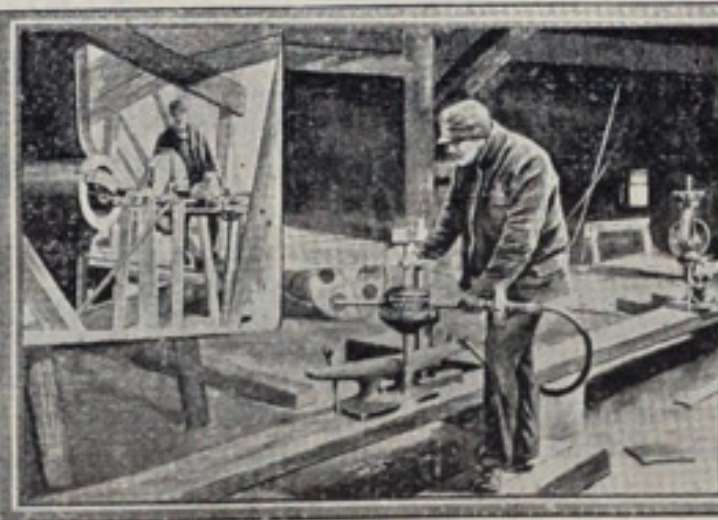
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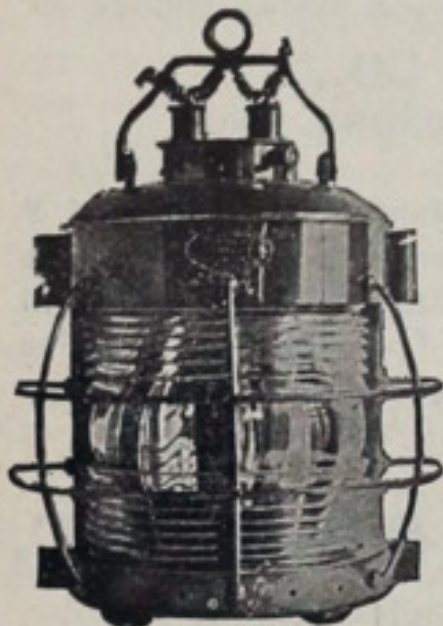
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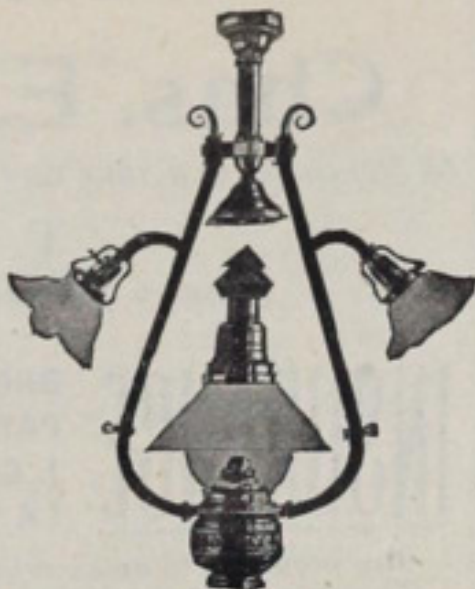
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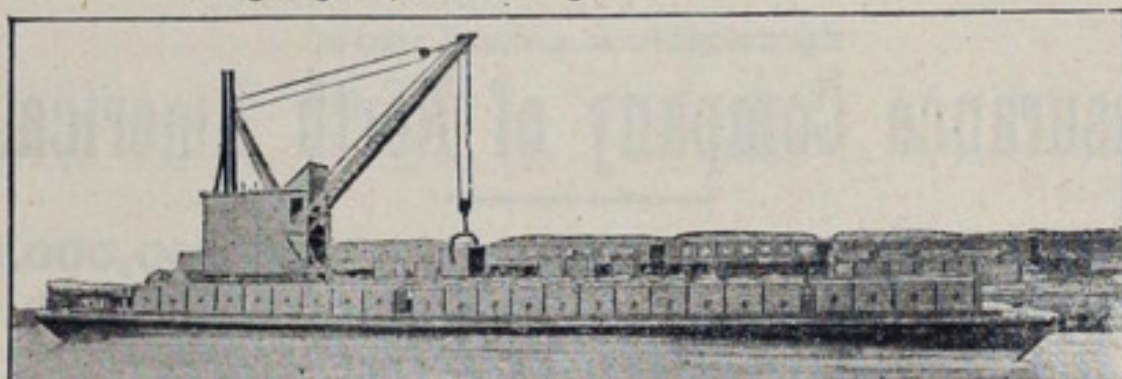
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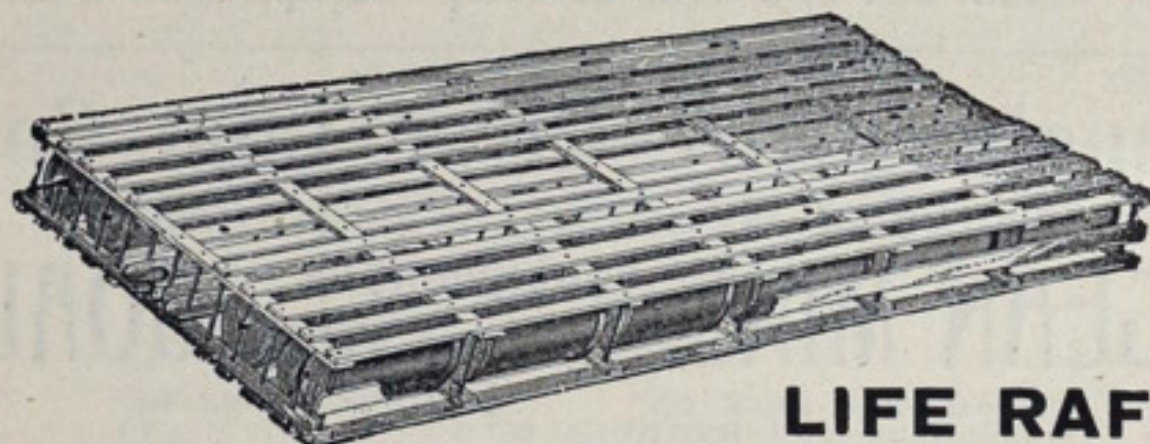
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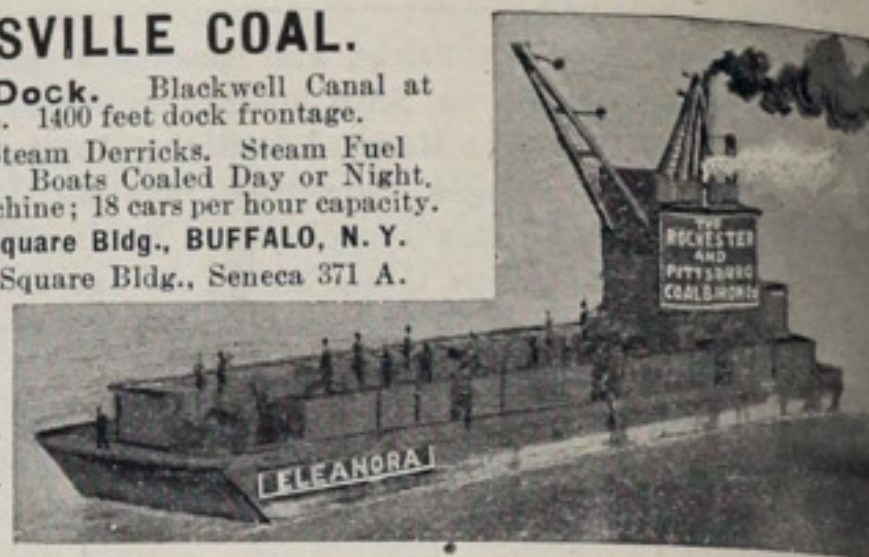
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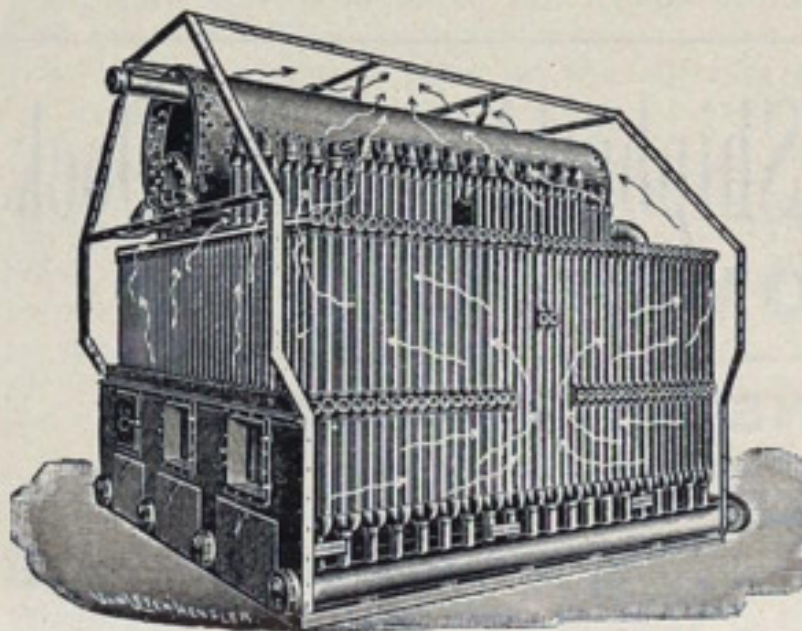
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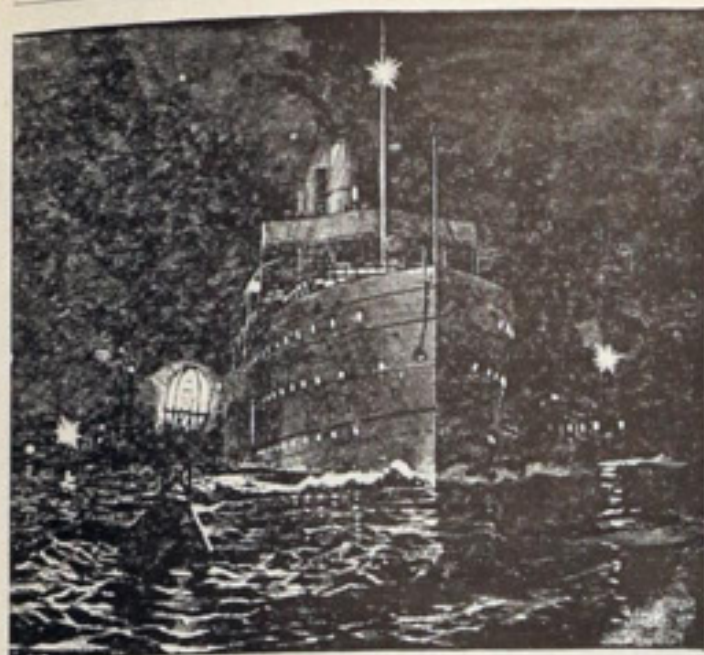
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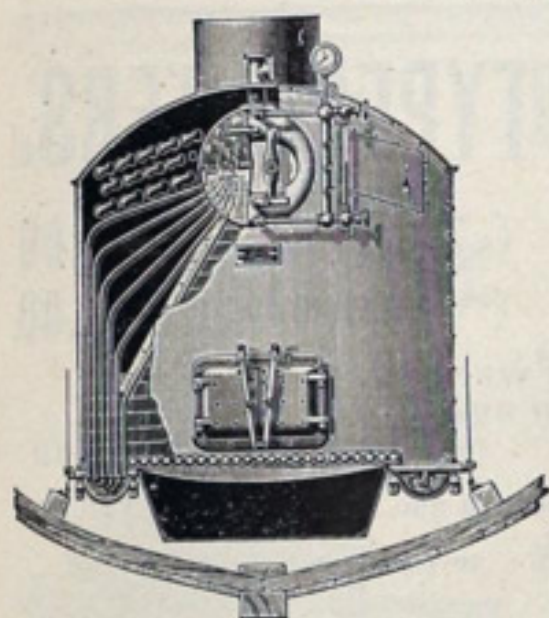
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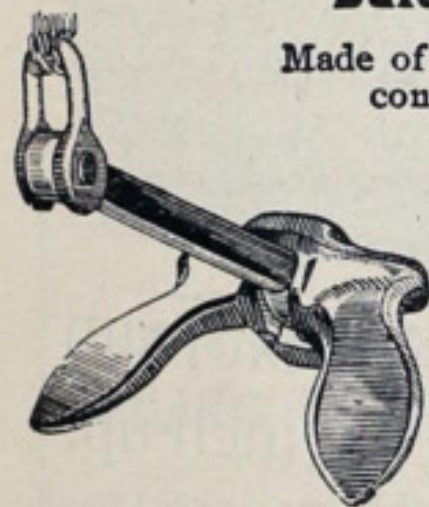
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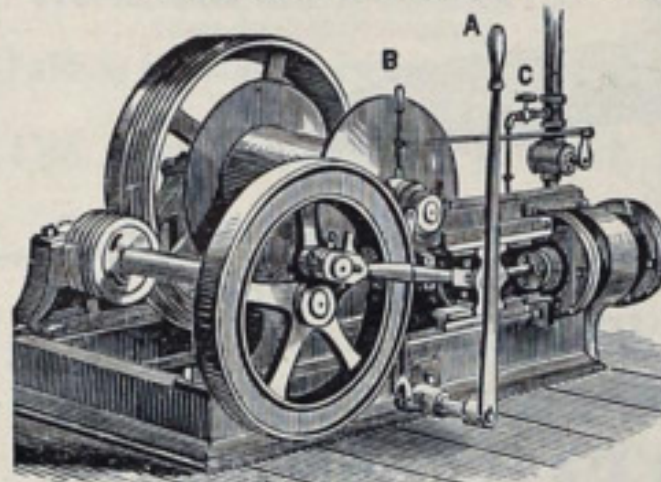


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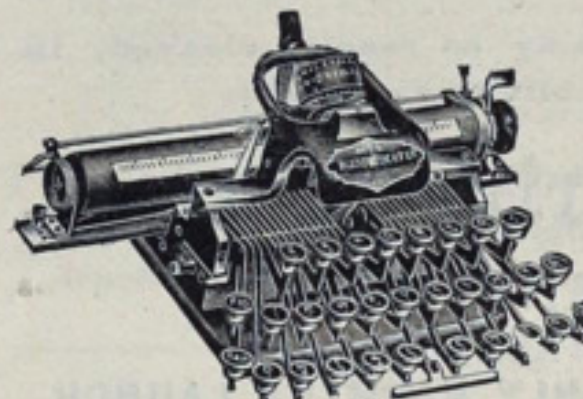
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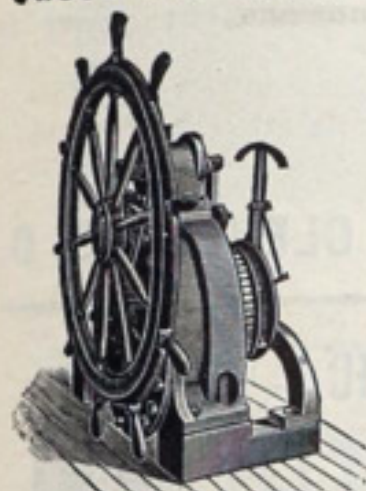
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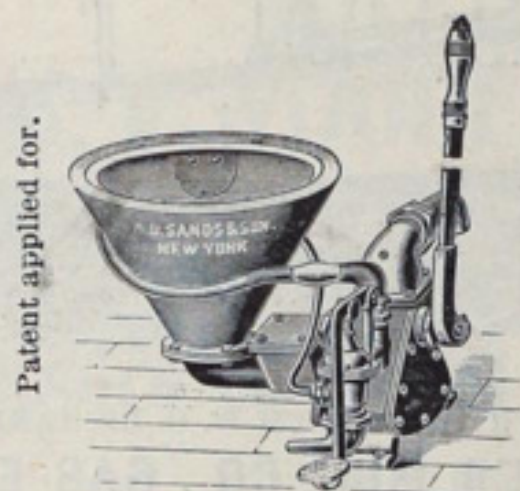
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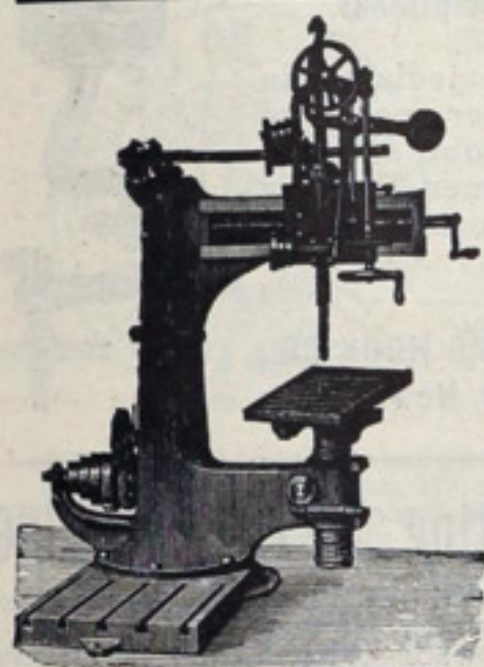
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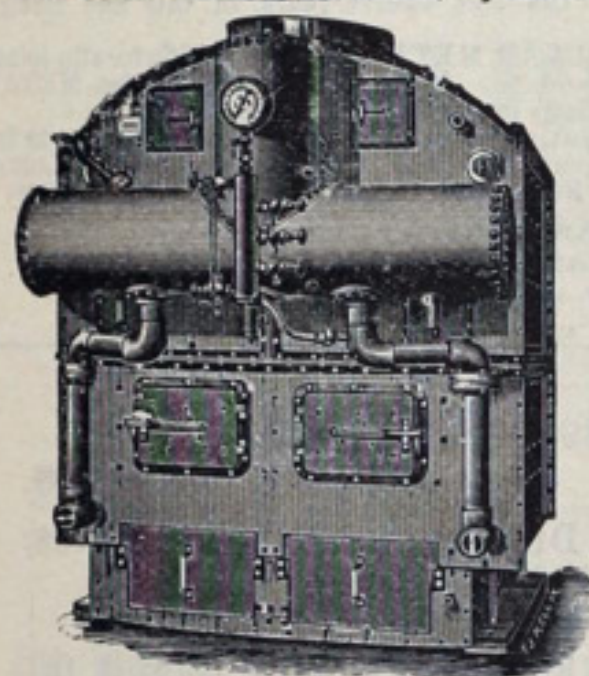
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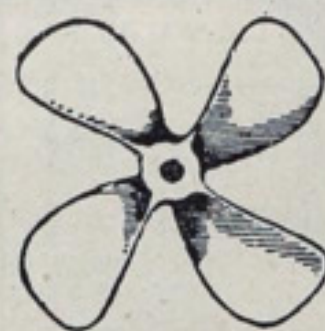
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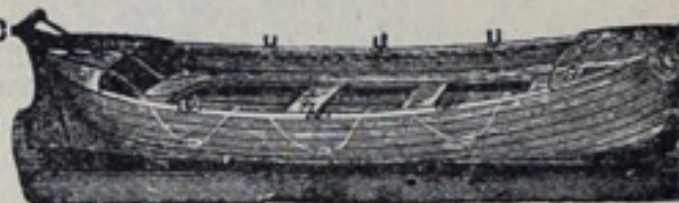
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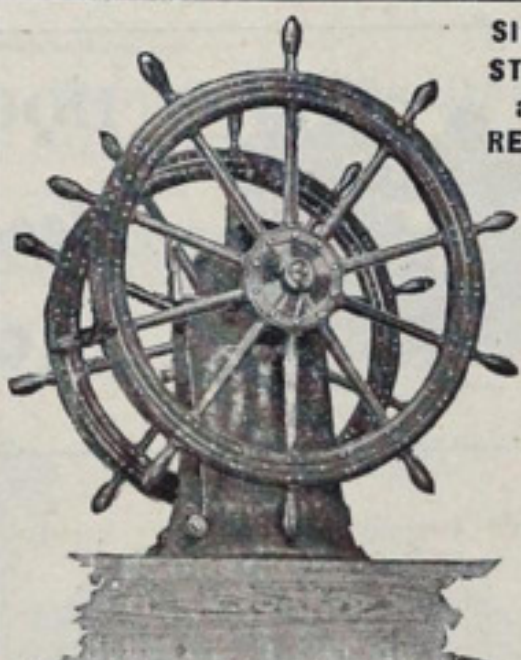
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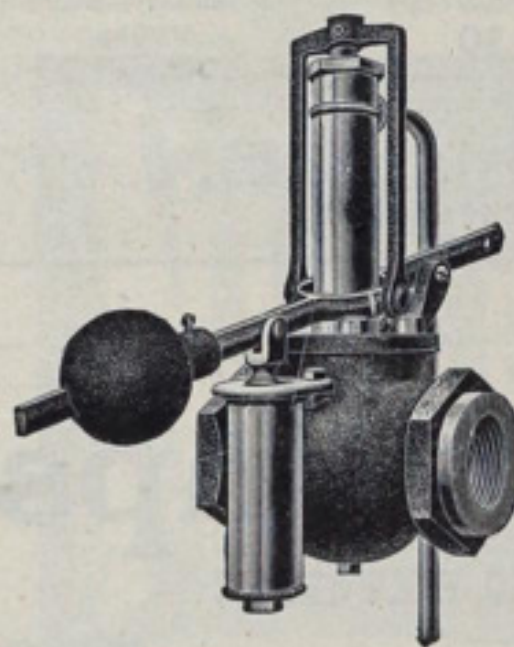
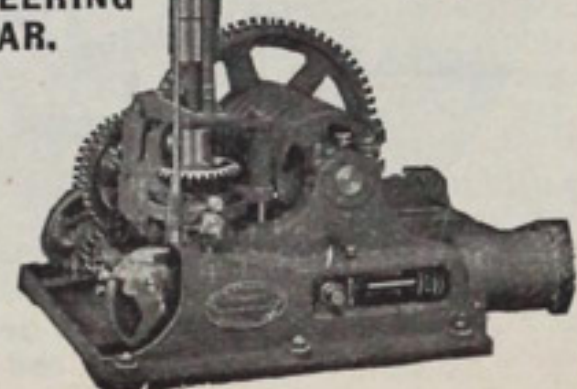


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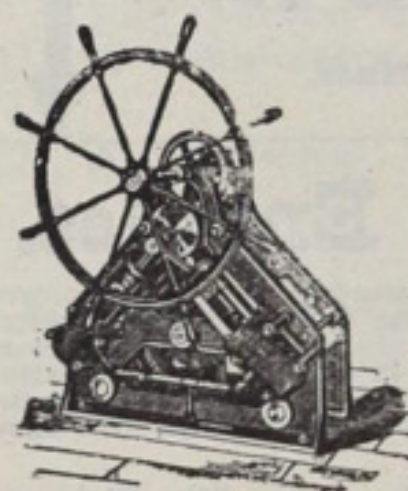
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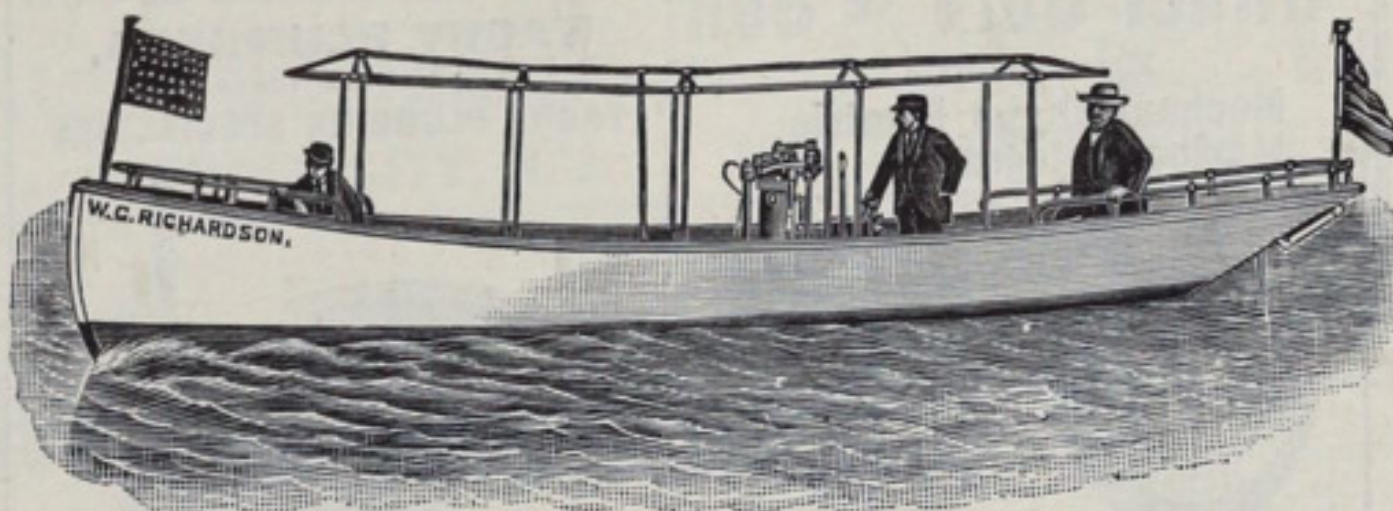


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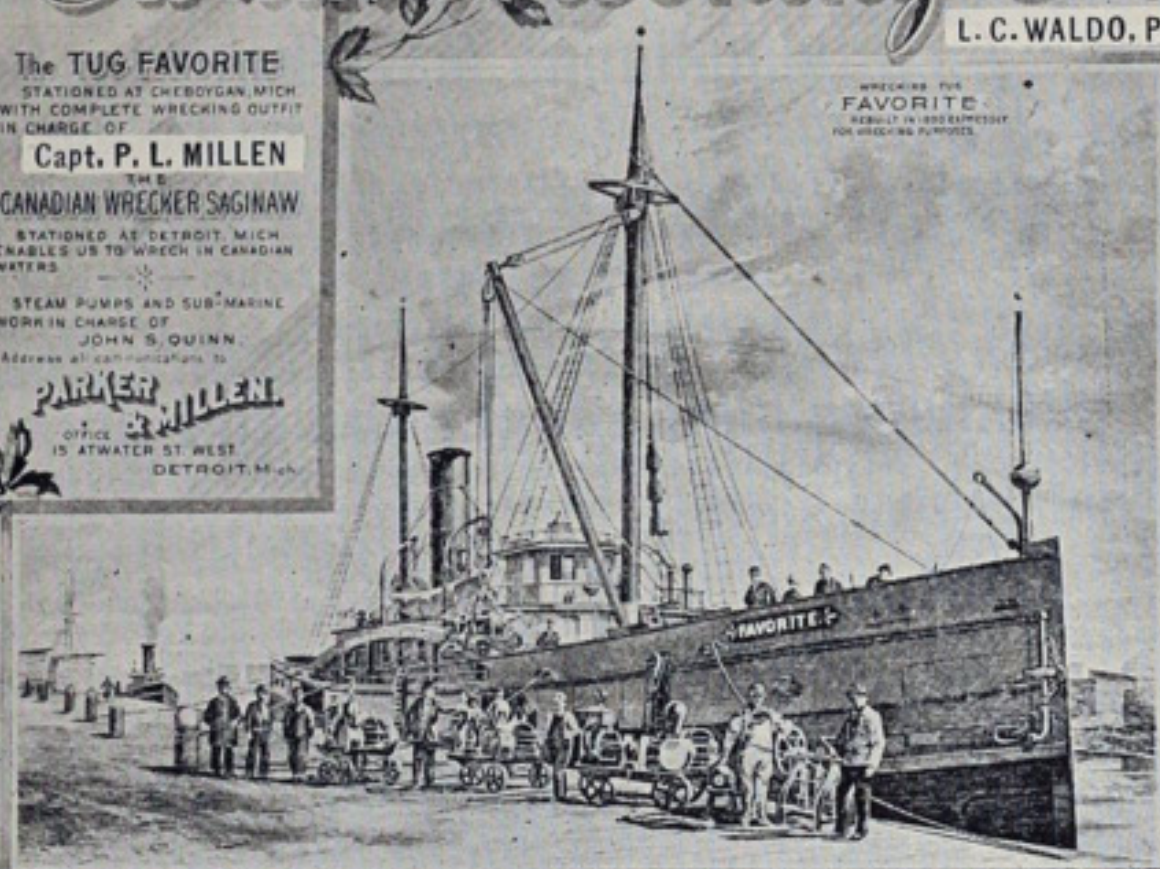
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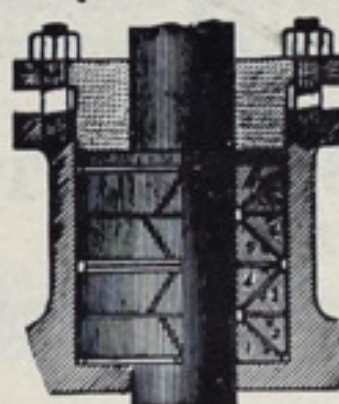
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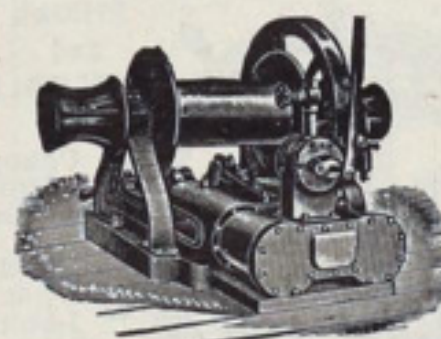
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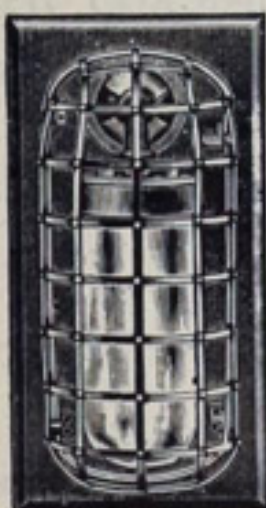
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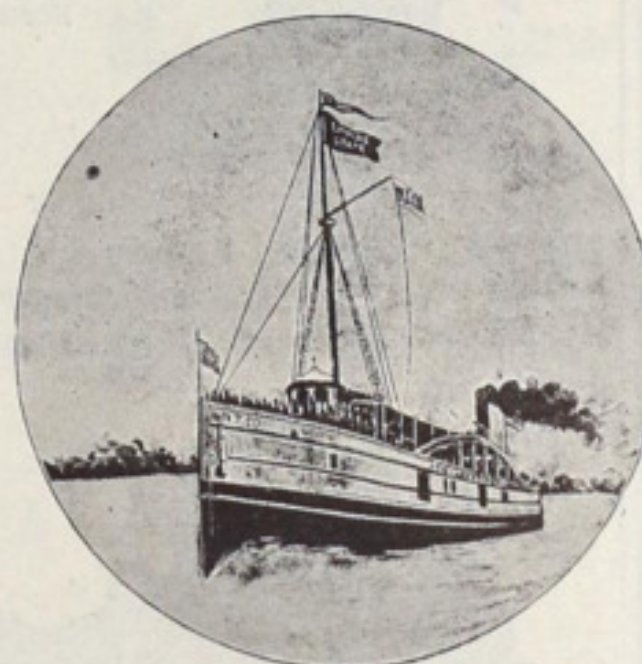
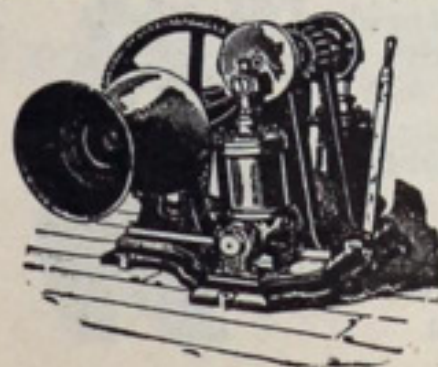
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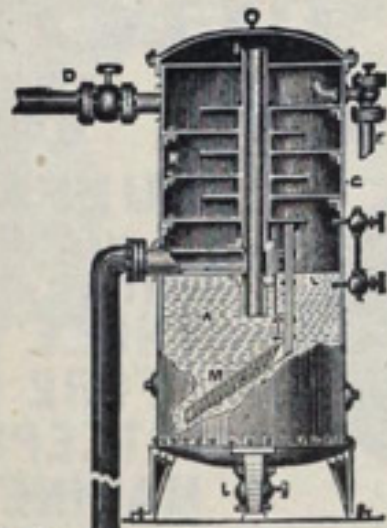
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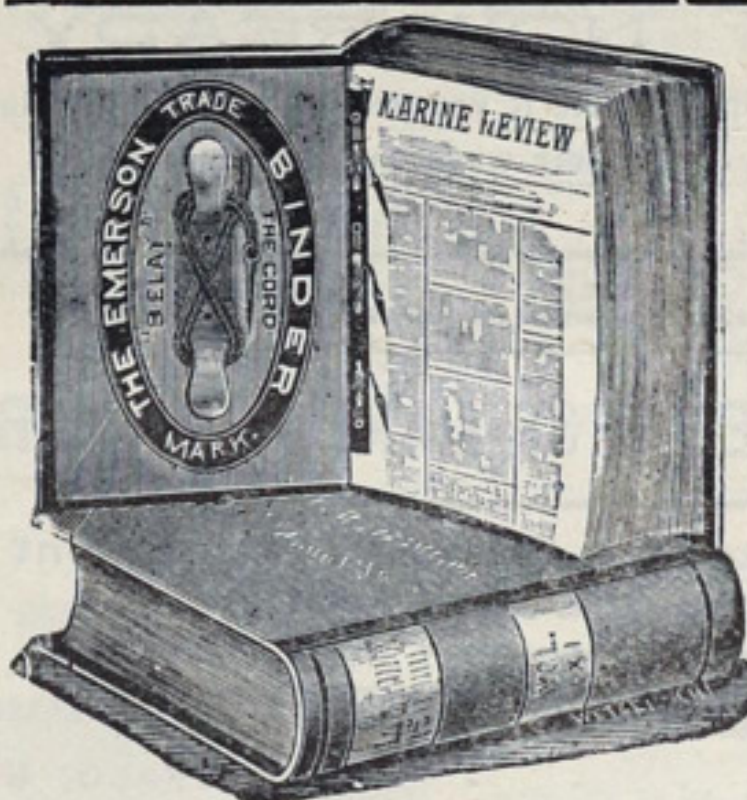
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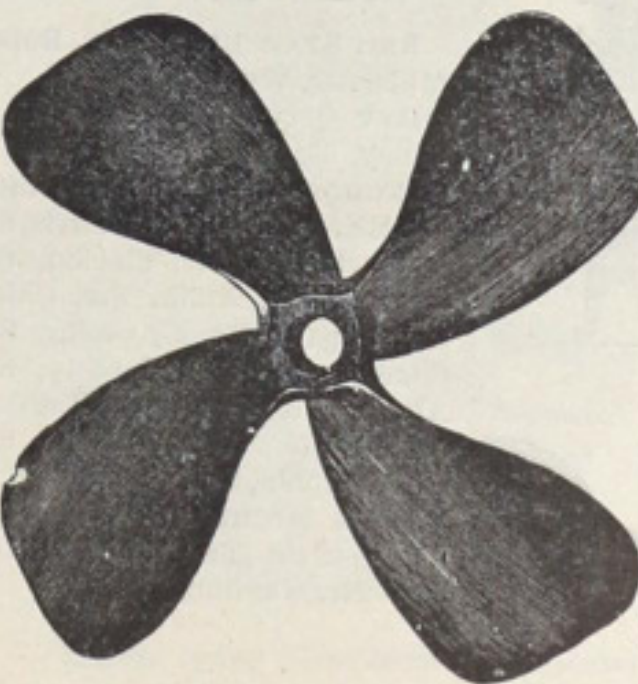
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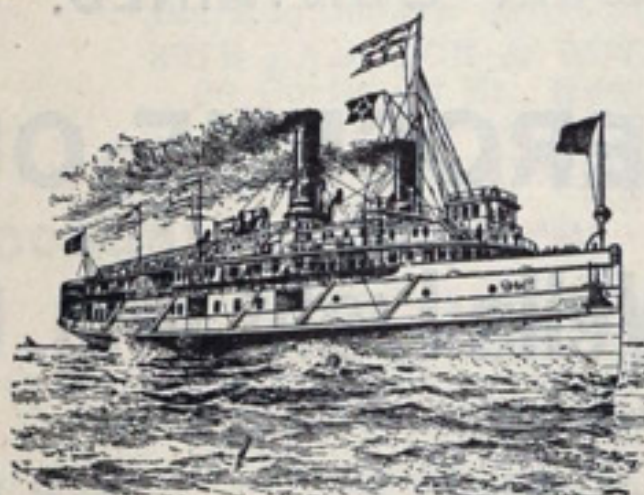
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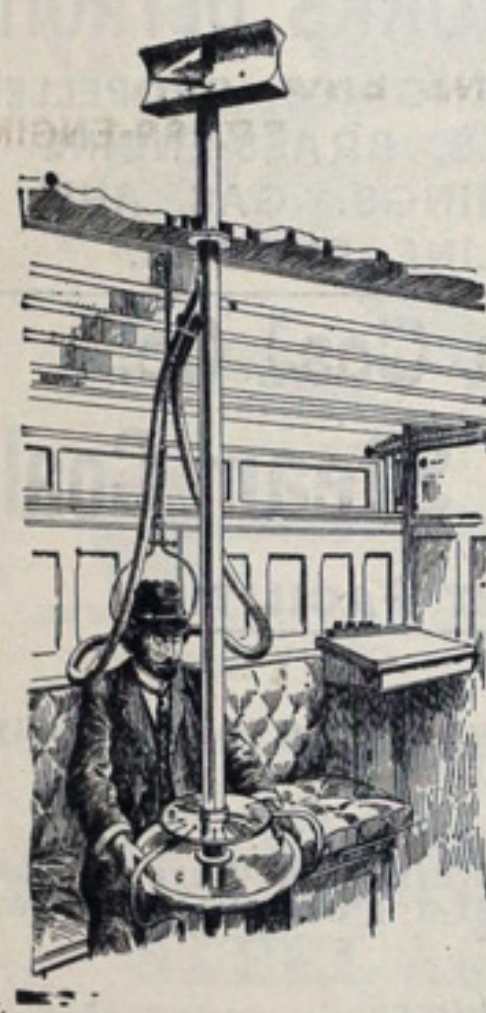
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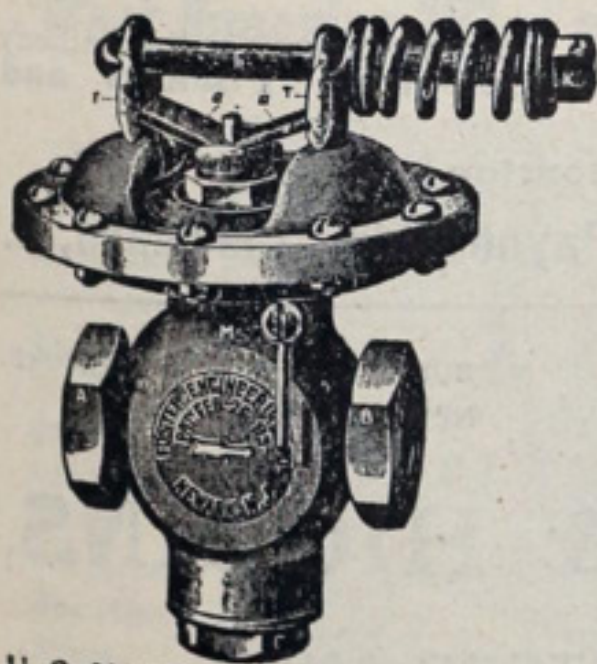
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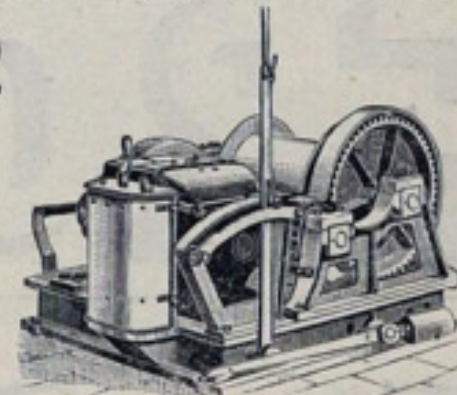
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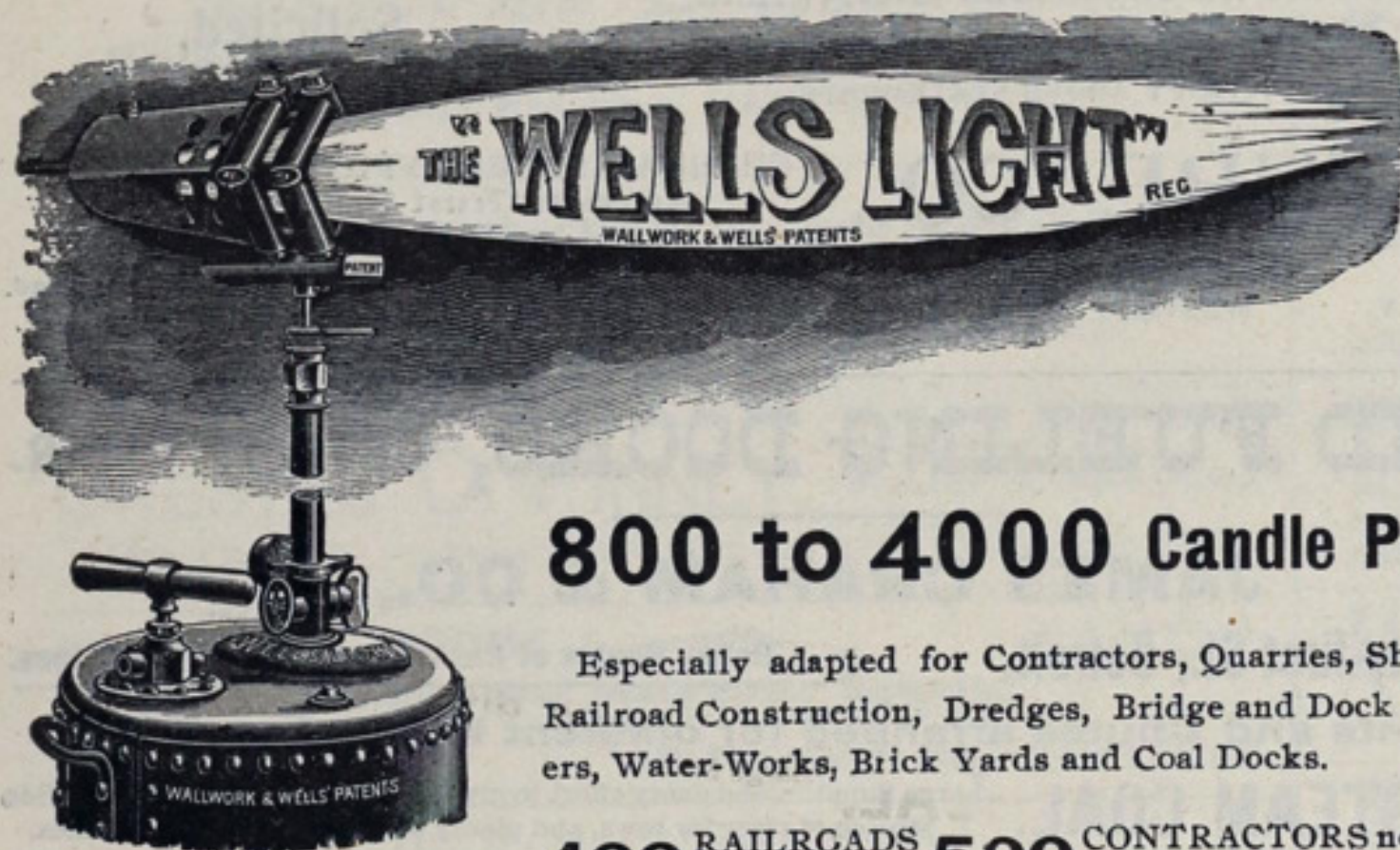
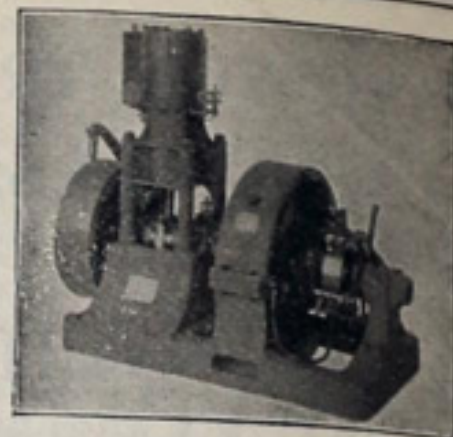
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June 10, 1898.

1. Please forward to the Commanding Officer, U. S. S. 'MARIETTA', Key West, Fla., 8 fire bricks, 4 rights and 4 lefts, No. R, 3440, Babcock & Wilcox boilers, to replace broken bricks between furnace doors.

2. Your bill for these articles should be sent to the same officer and should refer to Steam Engineering Requisition dated June 1, 1898.

THE BABCOCK & WILCOX CO.,
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Respectfully,

(Sig.) EDWIN STEWART, Paymaster General,
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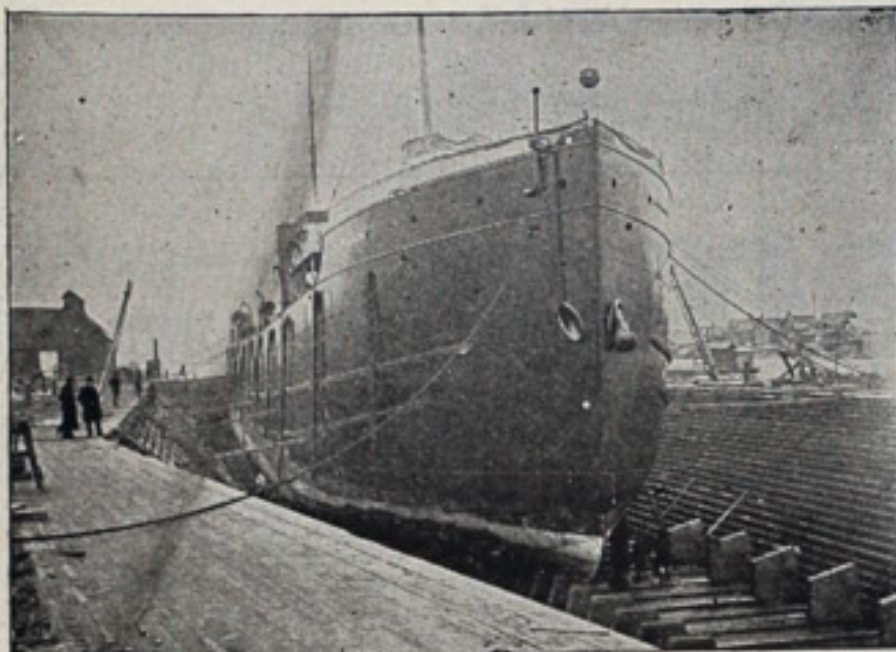
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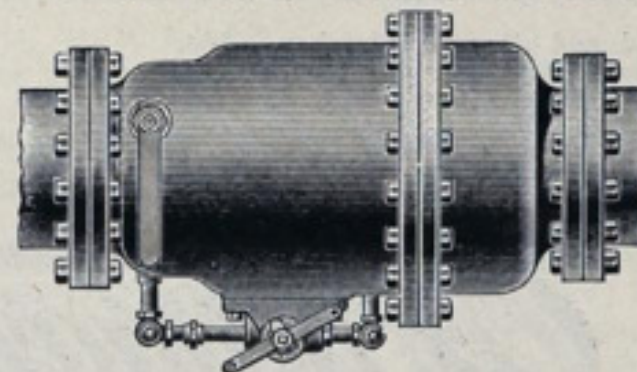
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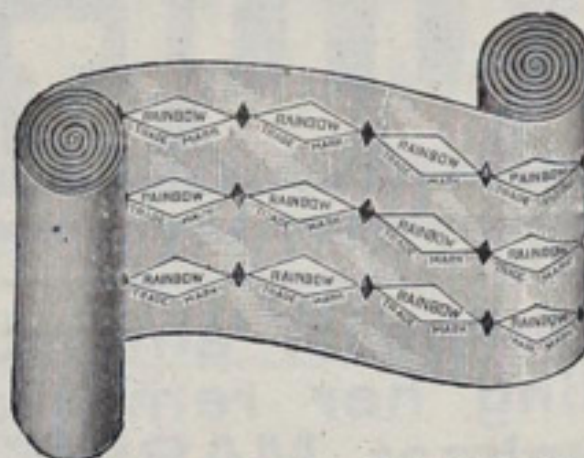
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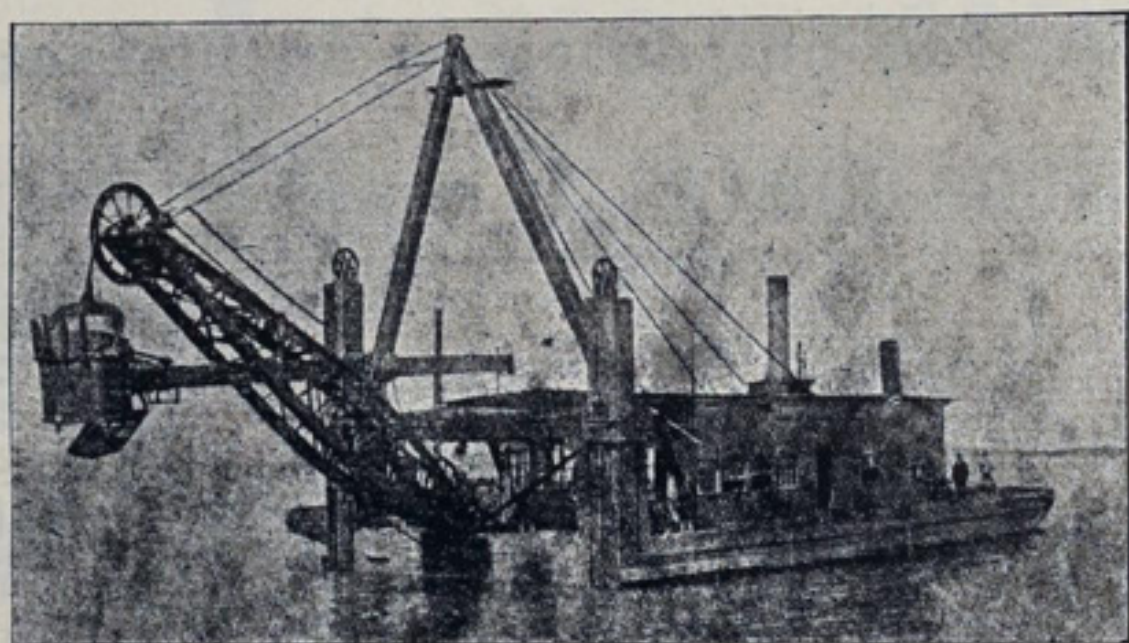
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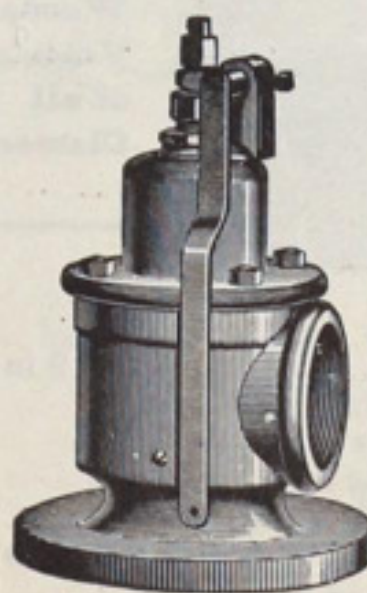
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